BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Order Instituting Investigation and Order to Show Cause on the Commission's Own Motion into the Operations and Practices of Pacific Gas and Electric Company with respect to Facilities Records for its Natural Gas Distribution System Pipelines.	Investigation 14-11-008 (Filed November 20, 2014)

OPENING BRIEF OF THE SAFETY AND ENFORCEMENT DIVISION

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SUMMARY OF RECOMMENDATIONS

(1) PG&E should be found in violation of the following code sections:

a. 49 CFR §192.605(a) for failure to follow written procedures to maintain and update operating maps and records.

b. 49 CFR §§ 192.603(b), 192.605(a), 192.13(c) and PU Code § 451 for failure to establish controls to ensure that its gas distribution system records are maintained current and complete.

c. 49 CFR §§ 192.605(b)(4), 192.605(b)(8), 192.613, 192.617 and PU Code §§ 451 and 961(d)(1) for failure to effectively assess data to evaluate the causes and implications of incidents, and for failure to incorporate the lessons learned from these investigations into utility policies, procedures, and programs.

d. PU Code § 451 for failure to disclose the missing De Anza Division records in response to the OII.

e. 49 CFR § 192.605(b)(3) and PU Code § 451 for failure to provide operating personnel with complete and accurate construction records, maps and operating history to safely perform work.

f. 49 CFR § 192.614(c)(5) and California Government Code § 4216.3(a)(1) for failure to properly mark and locate its subsurface facilities in response to Underground Service Alert requests.

g. 49 CFR §§192.603(b), 192.605(a), 192.619(c) for failure to maintain records to establish the maximum allowable operating pressure (MAOP) for approximately 243 distribution systems.

h. 49 CFR §§ 192.605(a), 192.614(c)(5), 192.805(h) and California Government Code § 4216.3(a)(1) for various incidents caused by failure to follow written procedures and inconsistent operator qualification training of its personnel resulting in the improper locate and mark of its subsurface facilities.

i. 49 CFR §192.723(b)(2) for failure to conduct the required leak survey due to unmapped distribution facilities.

j. 49 CFR §192.321(e) for incidents caused by failure to install tracer wire on plastic pipe resulting in the improper locate and mark of its subsurface facilities.

k. 49 CFR §§ 192.605(a), 192.727(b) for incident caused by failure to follow written procedures resulting in the improper deactivation or abandonment of its gas facilities.

(2) PG&E should be ordered to pay a fine in the amount of **$111.926 million** to be paid by PG&E shareholders.

(3) PG&E should be ordered to conduct the following remedial measures:

a. **Missing Records**: PG&E should conduct a systemic review of its records to determine if there are other categories of missing records of the same magnitude as the missing De Anza records. Within 90 days of a final Commission decision in this matter, PG&E should file a report that identifies all of the categories of missing records for its gas distribution system identified in this review and an assessment of how the records were lost.

b. **Incomplete Records and Maps**: Within 90 days of a final Commission decision in this matter, PG&E should file a report based on a systemic review of its distribution system to ensure that all of its facilities are accounted for. PG&E should leverage information gathered from its field personnel and various sources, such as its CAP, to determine any negative trends that impact the completeness and accuracy of its records and maps.

c. **Inaccurate Records and Maps**: PG&E should conduct a review of its GD GIS system to validate the data using all available records to ensure completeness and accuracy of data in GD GIS. Within 90 days of a final Commission decision in this matter, PG&E should file a report presenting documentation of all aspects of this review.

d. **Unknown Plastic Inserts:** PG&E should evaluate the need for a proactive program to identify unknown plastic inserts in its distribution system. Within 90 days of a final Commission decision in this matter, PG&E should file a report describing the evaluation for program need, and the basis for why a proactive program is or is not needed. PG&E should also describe any additional measures it is taking to address the risk of unknown plastic inserts

e. **Unmapped Stubs**: Within 90 days of a final Commission decision in this matter, PG&E should provide a report describing its policy of for identification of stubs, and documenting a systemic effort to account for stubs.

f. **Damage Prevention**: PG&E should perform an analysis to determine causes of at-fault excavation damages of its distribution system. Within 90 days of a final Commission decision in this matter, PG&E should provide a report of its analysis including measures to reduce the number of at-fault excavation damages caused by mapping and/or record inaccuracies in its gas distribution system.

g. **Distribution MAOP**: Within 90 days of a final Commission decision in this matter, PG&E should identify all of the facilities in its distribution system[1] in

[1] 49 CFR §192.3 defines a distribution line as "a pipeline other than a gathering or transmission line."

which PG&E applied its alternative method of using post-1970 leak survey records to establish the MAOP. PG&E should provide a final list of these systems with the following data, at a minimum:

- Distribution line number, name, or nomenclature used by PG&E to identify the system
- Location of the system – City and PG&E Division responsible for operations and maintenance
- Operating Pressure
- MAOP
- Date installed
- Date placed in service
- Strength test information – date tested, test pressure, and duration
- Material type
- Size
- Length
- Copy of record/document used to establish the MAOP

h. **Distribution MAOP**: PG&E should conduct a risk analysis and demonstrate its basis to conclude that the method it used for setting MAOP on the approximately 243 distribution systems do not create any additional safety risk. Along with the final list indicated above, within 90 days of a final Commission decision in this matter, PG&E should provide a report to the Commission describing the risk analysis performed, conclusions from that analysis, and any proposed remedial measures. SED reserves the right to review PG&E's report and submit a recommendation to the Commission.

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I. INTRODUCTION

Recordkeeping requirements for gas distribution systems have been in place for decades. PG&E has also known about its gas distribution recordkeeping failures for decades. The impacts of PG&E's failures have been felt across its service territory, including a house explosion in the city of Carmel. PG&E's gas distribution recordkeeping violations endanger the public.

PG&E should be found in violation of the code sections identified throughout this brief. PG&E should be ordered to pay a shareholder-funded fine in the amount of **$111.926 million**. Finally, PG&E should be ordered to commence the identified remedial measures.

The law is clear. The record of PG&E's violations of the law is also clear. A preponderance of the evidence establishes that PG&E has violated applicable law.[2] It is important to note that the cited incidents and practices are a sample within PG&E's broad systemic gas distribution recordkeeping problems. Holding PG&E accountable for this sample will improve public safety, ensuring that PG&E learns from its mistakes.

[2] See D.12-02-032, 2012 Cal. PUC LEXIS 74, at *4-5.

II. SCOPE

The Scoping Memo establishes the following regarding this proceeding:

> The scope of the matter properly before the Commission is whether or not PG&E violated any provision of the Public Utilities Code, general orders, federal law adopted by California, other rules, or requirements, and/or other state or federal law, by its recordkeeping policies and practices with respect to maintaining safe operation of its gas distribution system. If any such violations are proven, fines may be imposed in this matter pursuant to Pub. Util. Code §§ 2107 and 2108, and remedial operational measures may be directed pursuant to Pub. Util. Code §§ 451, 701, 761, and 768.[3]

This is consistent with the OII itself which determined that "[t]he SED Reports present us with a strong showing that PG&E violated applicable law."[4] PG&E was thereby "directed to show at hearings why the Commission should not find it in violation."[5] In the OII, PG&E was further provided notice that this proceeding shall "[d]etermine the penalty for any proven violation, in compliance with the law."[6] Consistent with the notice provided to PG&E regarding scope, this Opening Brief demonstrates that PG&E has violated applicable law, and should thus be penalized.

III. PG&E'S RECORDKEEPING REQUIREMENTS

As discussed in the PWA Report, PG&E has been subject to numerous recordkeeping requirements regarding its gas distribution system. Regarding general mandates, PWA identified certain sections in the California Public Utilities Code, including PU Code §§ 451, 961, and 963.[7] PWA identifies numerous relevant recordkeeping provisions throughout its Report.[8]

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[3] Assigned Commissioner's Scoping Memo and Ruling, dated: April 10, 2015 ("Scoping Memo"), at 3.

[4] Order Instituting Investigation and Order to Show Cause, dated: November 20, 2014 ("OII"), at 14, OP 4.

[5] OII, at 14, OP 5.

[6] OII, at 11.

[7] Exhibit 1, PWA Report, Attachment C, at 111.

[8] See, e.g., Exhibit 1, PWA Report, at 25:10 – 33:18, and Attachment C.

A. Recordkeeping Requirements Are Not New

Reviewing the relevant provisions, it is notable that the duty to maintain records is not new. PWA testifies that: "[r]egulations describing requirements for records retention have been in place for decades, with the earliest identified being issued by the California Railroad Commission in 1932."[9] In support of this testimony, PWA points to: "Standards for Gas Service in the State of California, General Order ["GO"] No. 58-A, effective July 1, 1932."[10] PWA further notes that: "[t]his was the third edition of this standard; the initial version was effective September 1, 1919."[11]

B. Recordkeeping Requirements Have Been Strengthened Over the Years

Regarding the evolution of Commission GOs incorporation of recordkeeping requirements, the PWA Report explains that:

> Historically, mapping and recordkeeping requirements for utilities have been mandated by the CPUC in General Orders 58 and 112. Over the years the recordkeeping requirements in these orders have been periodically updated, with the most recent requirements provided in General Orders 58A, … 112-E and 112-F. … CPUC General Orders are routinely updated to incorporate and often to exceed the most recent federal requirements.[12]

In D. 61269, the Commission adopted the rules set forth in GO 112, with utility compliance ordered by January 17, 1961.[13] Among other things, GO 112 essentially mandated utility compliance with ASA B31.8-1958, as amended, including its recordkeeping requirements.[14] At the time, PG&E had represented to the Commission

[9] Exhibit 1, PWA Report, at 1:18-19.

[10] Exhibit 1, PWA Report, at 1, fn. 1.

[11] Exhibit 1, PWA Report, at 1, fn. 1.

[12] Exhibit 1, PWA Report, at 31:13-16, 23-24.

[13] D.61269 (1960) 58 Cal. P.U.C. 413.

[14] See Exhibit 1, PWA Report, at 27-28. See also GO 112 § 107.

that a GO requiring testing and recordkeeping was unnecessary because PG&E, along with other utilities, already voluntarily complied with ASME B31.8-1958.[15]

Notably, ASA B31.8-1958 includes the following requirement:

> 851.5 Pipeline Leak Records. Records should be made covering all leaks discovered and repairs made. All pipeline breaks should be reported in detail. These records along with leakage survey records, line patrol records and other records relating to routine or unusual inspections should be kept in the file of the operating company involved, as long as the section of line involved remains in service.[16]

In D.15-04-021, the Commission determined that "[t]here is no express statement that the 'life of facility' retention period adopted in GO 112 is no longer in effect. As such, the ASME B.31.8 standards are still applicable."[17]

In 1970, Title 49 of the Code of Federal Regulations ("CFR") Part 192 was adopted.[18] PWA notes that it was "[i]ncorporated by the CPUC" [in] GO 112-C" in 1971.[19] In 1995, the Commission determined that it would automatically adopt any revisions to the Federal Pipeline Safety Standards contained in 49 CFR §§ 190,191, 192, 193, and 199.[20]

GO 112-E, at section 104.1 states:

> It is the intent of the California Public Utilities Commission to automatically incorporate all revisions to the Federal Pipeline Safety Regulations, 49 CFR Parts 190, 191, 192, 193, and 199 with the effective date being the date of the final order as published in the Federal Register.[21]

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[15] D.61269, at 4.

[16] ASA B31.8-1958, § 851.5.

[17] D.15-04-021, at 231.

[18] Exhibit 1, PWA Report, at 28.

[19] Exhibit 1, PWA Report, at 28. See D.78513 (1971), at 3.

[20] See D.95-08-053, D.95-12-065; See also GO 112-E § 104.1.

[21] GO 112-E § 104.1.

Moreover, GO 112-E, at section 101.4 orders utilities to maintain the necessary records to ensure compliance.

> The utilities shall maintain the necessary records to ensure compliance with these rules and the Federal Pipeline Safety Regulations, 49 CFR, that are applicable. Such records shall be available for inspection at all times by the Commission or Commission Staff.[22]

As Mr. Paskett agreed at hearings, an operator must ultimately demonstrate compliance with recordkeeping requirements:

> MR. MOLDAVSKY: Q. Do you agree that an operator is ultimately responsible to demonstrate that they're in compliance with state and federal recordkeeping requirements including completeness and accuracy?
> A. As they're defined in state and federal regulations I would agree. If I may elaborate, your Honor.[23]

Per GO 112, and its successor order, PWA points out that sections 192.603 and 192.605 includes critical recordkeeping provisions such as:

> 49 CFR §192.603(b) (November 11, 1970) – Each operator shall keep records necessary to administer the procedures established under §192.605.
>
> 49 CFR §192.605(a) (November 11, 1970) - Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response.
>
> 49 CFR §192.605(b) (November 11, 1970) - *Maintenance and normal operations.* The manual required by paragraph (a) of this section must include procedures for the following, if

[22] GO 112-E § 101.4.

[23] RT at 341:9-16 (Vol. 2).

> applicable, to provide safety during maintenance and operations.
> (3) Making construction records, maps, and operating history available to appropriate operating personnel.
> (8) Periodically reviewing the work done by operator personnel to determine the effectiveness, and adequacy of the procedures used in normal operation and maintenance and modifying the procedures when deficiencies are found.
>
> 49 CFR §192.13(c) - Each operator shall maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under this part.[24]

PWA also identifies sections of Title 49 CFR Part 192 associated with establishing Maximum Allowable Operating Pressure ("MAOP"), and related recordkeeping requirements, such as sections 192.517 and 192.619.[25] The Distribution Integrity Management Plan ("DIMP") regulation, from 2009, was also identified by PWA.[26]

PWA further testifies that in 2006, California Government Code § 4216 was adopted, which requires that:

> 4216.3 (a) (1) Any operator of a subsurface installation who receives timely notification of any proposed excavation work in accordance with Section 4216.2 shall, within two working days of that notification, excluding weekends and holidays, or before the start of the excavation work, whichever is later, or at a later time mutually agreeable to the operator and the excavator, locate and field mark the approximate location and, if known, the number of subsurface installations that may be affected by the excavation to the extent and degree of accuracy that the information is available either in the records of the operator or as determined through the use of standard locating techniques other than excavating, otherwise advise the person who contacted the center of the location of the operator's subsurface installations that may be affected by the excavation, or advise the person that the operator does not

[24] Exhibit 1, PWA Report, at 32:32-44. PWA notes 49 CFR §192.603(b) at 4:2.

[25] Exhibit 1, PWA Report, at 28-29.

[26] Exhibit 1, PWA Report, at 29-30 (citing 49 CFR § 192.1007).

> operate any subsurface installations that would be affected by the proposed excavation.[27]

The PWA Report also takes note of Advisory Bulletin - ADB-02-03, NTSB - Safety Recommendation P-87-34, and NTSB - Safety Recommendation P-97-19.[28] While PG&E contests the applicability of these provisions, SED notes that such standards have put PG&E on notice of expectations for safe service per PU Code § 451. In fact, Mr. Singh asserts that PHMSA guidelines are "clarifying" thereby "providing guidance to operators regarding that specific section of the code."[29] The PWA Report notes that: "[t]he ADB and NTSB recommendations, though not included in actual gas safety code requirements, are advice and indicative of what RSPA/OPS (now PHMSA) as well as NTSB expect operators to achieve."[30]

C. PG&E's Gas Distribution Recordkeeping Remains Deeply Flawed

Despite having notice for decades of its recordkeeping requirements, PG&E's gas distribution recordkeeping remains deeply flawed. Indeed, the Commission routinely receives semi-annual reports of PG&E's numerous mapping errors and corrections. As an example, Exhibit 31, PG&E's Semi-Annual Gas Distribution Pipeline Safety Report – Table 13B-1, regarding mapping errors for the final six months of 2014, was shown to PG&E's witness, Mr. Howe at hearings.[31] The document shows ***390 mapping errors*** and corrections for that six month period.[32] On cross-examination by SED, Mr. Howe did not provide a number of acceptable errors, noting the "reality" of PG&E's system:

> Q. Okay. How many errors on map records would you think would be acceptable for PG&E to have?

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[27] Exhibit 1, PWA Report, at 30.

[28] Exhibit 1, PWA Report, at 33:1-15.

[29] RT at 501:18-20 (Vol. 3).

[30] Exhibit 1, PWA Report, at 33:16-18.

[31] Exhibit 31, Letter from S. Sharp to J. Como, E. Randolph, E. Malashenko Re: PG&E Semi-Annual Gas Distribution Pipeline Safety Report - Table 13B-1 (8/31/2015) ("Semi-annual Report"), at 1.

[32] Exhibit 31, Semi-annual Report.

> A. I don't have any number that I think is acceptable. I think that there is a reality of our system, and the system of systems of every operator in the United States, as was discussed yesterday, and that is that records are not perfect. …[33]

Upon further cross-examination by SED, Mr. Howe conceded the risk to public safety posed by such errors.

> Q. Do you believe that mapping errors can be a threat to public safety?
> A. Yes. …[34]

Indeed, the PWA Report concludes that:

> PG&E maps and records have suffered from years of neglect, leading to a situation in which maps are inaccurate and records are incomplete; the inaccuracy and incompleteness has contributed to numerous incidents, some serious.[35]

The PWA Report also observes that PG&E was more focused on determining which records could be ***destroyed*** as opposed to which records should be maintained:

> PG&E and Division records management procedures inadequately detailed which records needed to be retained and maintained to demonstrate compliance with general order requirements, California Laws, and gas pipeline safety requirements. As a result an evolving set of PG&E record retention procedures focused more on ***which records could be destroyed*** rather than on required records and their retention requirements.[36]

The PWA Report determined that PG&E failed to follow its gas distribution recordkeeping procedures. The resulting status of those records was described as follows:

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[33] RT at 230:25 - 231:5 (Vol. 2).

[34] RT at 232:9-11 (Vol. 2).

[35] Exhibit 1, PWA Report, at 74:6-8.

[36] Exhibit 1, PWA Report, at 31:30-35 (emphasis added).

> PG&E's records retention procedures were inconsistently followed, resulting in map plats becoming outdated; containing incorrect and incomplete information. Key pipeline history records and files were lost, misplaced and/or inadvertently destroyed. Plats maps have been found to be incomplete or misleading because they do not contain up to date information on the location, nature, diameter and material of current lines. … Some plat maps have been found to contain lines that do not exist, and exclude gas lines that do exist.[37]

In PG&E's apparent view, failing to follow recordkeeping requirements does not constitute a violation. Mr. Huriaux opines that: "PG&E is in compliance with §192.605(b) because it maintains an O&M Manual that contains all the required procedures. This is not in dispute."[38] Putting aside the fact that Mr. Huriaux's testimony fails to account for Mr. Singh's admission that PG&E had violated 49 CFR §192.605(b) regarding the Mountain View Incident,[39] it also is a flawed interpretation of the law. This is because it reads the word "follow" out of the code.[40] Simply having an O&M Manual does not excuse a utility for failing to follow recordkeeping requirements. Indeed, GO 112-E specifically states that operators are required to "maintain the necessary records to ensure compliance with these rules and the Federal Pipeline Safety Regulations, 49 CFR, that are applicable."[41] PG&E cannot demonstrate that it ***followed*** the applicable recordkeeping requirements when its records are missing, incomplete or incorrect.

Beyond that, as discussed in the next section, failing to follow procedures has consequences. As an example, at hearings, SED introduced Exhibit 30, Gas CAP

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[37] Exhibit 1, PWA Report, at 31:36-40, 32:5.

[38] Exhibit 4, Chapter 7: Expert Report of Richard Huriaux ("Huriaux Report"), at 9.

[39] Exhibit 36, Exhibit 36, Letter from S. Singh to M. Robertson Re: Response to March 6, 2014 Gas Incident Violation Letter, Mountain View, California (4/4/2014) ("Mountain View Admission Letter").

[40] See 49 CFR § 192.605(a). See also 49 CFR § 192.13(c).

[41] GO 112-E, § 101.4.

Notification 7005503, during its questioning of Mr. Howe.[42] In its examination of at fault dig-ins, the CAP Item identified an "adverse trend in dig-ins."[43] The Cap Item noted "79 incidents of PG&E at-fault dig-ins" from January 1, 2014 – June 30, 2014.[44] As of August 22, 2014, 21 additional events were noted subsequent to July 1, 2014.[45] The identified causal factors were: map validation, inattention to map detail, minimal experience, did not call mapping, and adherence to procedure when a facility is difficult to locate.[46] The CAP Item noted a September 2012 analysis that found 69% of at fault dig-ins being due to "lack of procedure use and adherence."[47]

Though he had not seen the Adverse Trend CAP, and spoke glowingly about PG&E's alleged improvements, Mr. Howe admitted that: "I don't think any at-fault dig-ins is [sic] acceptable."[48]

D. PG&E's Flawed Gas Distribution Recordkeeping Contributed to the Incidents Discussed in the PWA Report

PWA notes that "[i]naccurate and missing records and maps have contributed to incidents, including those described in the OII."[49] The PWA Report also concludes that:

> The underlying cause of the six incidents in the OII are failures in record keeping, most commonly related to PG&E's failure to include records of maintenance and other changes to its facilities subsequent to the original installation. As discussed in Section 6.1 in this report, of the six incidents in the OII, two were caused by not having accurate records of

[42] See Exhibit 30, Gas CAP Notification 7005503 (Redacted) ("Adverse Trend CAP").

[43] Exhibit 30, Adverse Trend CAP, at 1.

[44] Exhibit 30, Adverse Trend CAP, at 1.

[45] Exhibit 30, Adverse Trend CAP, at 1-2.

[46] Exhibit 30, Adverse Trend CAP, at 3.

[47] Exhibit 30, Adverse Trend CAP, at 3.

[48] RT at 225:21-22 (Vol. 2).

[49] Exhibit 1, PWA Report, at 1:29-30.

> mains or services that that had plastic inserted into existing steel or other pipe materials.[50]

In its reply testimony, PG&E argues that maps are not to be used as primary sources, pointing to technology such as "[e]lectrical means, including conduction, induction, use of tracer wires, and passive location methods[.]"[51] However, PG&E may not be in a good position to rely on tracer wires.

At hearings, SED introduced Exhibit 32, a PG&E Internal Audit Report, dated: February 10, 2012.[52] The audit found that "the Utility's processes and controls for damage prevention are not adequate [footnote omitted] to ensure accurate, consistent and efficient execution of the damage prevention program."[53] The audit reviewed a "medium risk" issue concerning uninstalled locator wires in plastic service replacements:

> In the late 1960s, plastic pipe largely replaced metallic pipe for customer gas service lines. When possible, the Utility inserts new plastic service pipes inside of an existing steel service when the steel pipe is being replaced. Utility standards for this work require that copper locating wire be inserted along with the new plastic pipe in order to aid in locating the service in subsequent years.
> Utility standards also allow these plastic insert replacement projects to be completed using a compression-type finishing kit ("Powell kit") at the meter end of the pipe. However, because the Powell kit has no place for the inserted locating wire to emerge at the customer end, the wire is seldom installed. Gas Distribution employees have estimated that since the early 1980s (when this method was adopted) ***tens of thousands of plastic services have been installed without a locating wire***.[54]

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[50] Exhibit 1, PWA Report, at 34:3-7.

[51] Exhibit 4, PG&E Reply Testimony, Chapter 3: Field Operations ("Higgins Testimony"), at 3-13:18-20.

[52] Exhibit 32, Memorandum from Internal Auditing to Vice President - Gas Standards and Policies Re: Audit of Gas Damage Prevention Program, File # 12-014 (1B11-0112) (Redacted) ("2012 Audit"), at 1.

[53] Exhibit 32, 2012 Audit, at 2.

[54] Exhibit 32, 2012 Audit, at 6 (emphasis added).

The audit acknowledges that "gas services installed without locating wires can make subsequent mark and locate efforts difficult, more costly and less effective."[55] Significantly, the audit concludes that: "installing gas services that are difficult to locate later also increases the risk of a Utility at-fault dig-in on that service."[56]

Further, the audit observes that: "Utility construction standards do not require testing and documenting that a newly-installed plastic service can be located all the way from the meter to the main (using any locating method) before the job is finished."[57] The sampled consequences of this failure were also identified. "17 at-fault dig-ins on plastic pipe … were associated with missing or damaged locating wire in the past two years; 8 of these incidents involved plastic insert replacement projects."[58]

Despite the internal audit findings, PG&E's witness Mr. Higgins opined at hearings that a bond could assist in locating an insert without a tracer wire.

> Q. Wait a minute. Wouldn't a conductive means require a locating wire?
>
> A. Or a bond on the existing steel carrier pipe.[59]

However, Mr. Higgins could offer no assurances as to how many such bonds exist within the tens of thousands of plastic inserts identified by the internal audit.

> Q. Okay. Sir, but I appreciate that you want to explain that, but that wasn't the question I asked. I'm asking, we have a foundation here that since the 1980s, not current practice, that there were tens of thousands of plastic services installed without a tracer, tracing wire. One would need a tracer wire to locate them using the conductive method. You assert that beyond that there was a type of bonding that could be detected using the conductive method. I'm asking you amongst these tens of thousands of pipes how many of them can you guarantee have such a bond?

[55] Exhibit 32, 2012 Audit, at 6.

[56] Exhibit 32, 2012 Audit, at 7.

[57] Exhibit 32, 2012 Audit, at 6-7.

[58] Exhibit 32, 2012 Audit, at 7.

[59] RT at 273:23-26 (Vol. 2).

A. I would have no idea. I don't know.[60]

PG&E's speculation regarding bonds detectable by conductive means should be given no weight. On this point, PG&E has not disproven PWA's position that accurate maps are essential for locating facilities.

Also, regarding plastic inserts, significant mapping delays were detected by PWA.

> For the plastic inserted steel mains and service incidents, for which the plastic inserts were made in the 1980's and 1990's based on the manufacturing date of the inserted plastic, the maps were never updated to reflect the inserts. More recently [internal citation omitted] a[n] SED inspection discovered plastic mains and/or services - inserted, in 2013 and 2014 – that were not shown on maps as of August 2015.[61]

PWA noted that that recent inspection had "found over 9% of the services that had plastic inserts were not mapped in a reasonable period of time – that is several months."[62] Regarding the inspection, Table 8 of the PWA Report indicates a time delay of ~588 days to ~788 days for two San Francisco insertions, and ~362 days to ~643 days for two San Jose insertions.[63] This is a troubling sample.

PWA was not convinced by Mr. Trevino's testimony countering these timeframes. Regarding the San Francisco inserts, PWA rebutted Mr. Trevino's argument by stating, in part:

> It appears that the PG&E reply testimony confirms that it did not update its map and service related records for over nineteen months to reflect the partial plastic insertions of service lines because partial inserts were performed under a maintenance accounting tracking function work order, and therefore those maintenance records are now part of a backlog that will be addressed in the future. While the PG&E reply discussion clarifies that this inspection finding is not evidence for PG&E violating its procedures or seriously deviating from

[60] RT at 274:8-23 (Vol. 2).

[61] Exhibit 1, PWA Report, at 34:21-25.

[62] Exhibit 1, PWA Report, at 34, fn. 46.

[63] Exhibit 1, PWA Report, Table 8, at 57:12-14.

> its map update timing goals in its tracking process, it does identify a potentially additional serious source of map errors resulting from its update practices since 2013.[64]

Regarding the San Jose insertions, PG&E's defense regarding the wrong addresses is little more than an admission of records inconsistencies. The PWA Report notes that "[c]onsistency among the records used to document maintenance work and to support map updates is critical."[65] For privacy purposes, SED will not disclose the customer addresses at issue, but would note that the underlying work forms had inconsistant addresses.[66]

Unmarked or mismarked stubs were also contributing factors. The PWA Report observes that: "mis-mapped or unmapped stubs off a main … [are] a major source of marking errors that have caused damage by third parties (as well as PG&E crews) when doing work adjacent to or on the existing mains."[67] The PWA further observes that:

> [T]here are issues not only with inaccurate records of where the stub was cut-off, but that some stubs shown on the maps are not in the location where they are shown, or they have potentially been cut-off at the main and thus no longer exist. Inaccurately mapped stubs are an issue when other infrastructure work requiring excavation is performed since service line stubs may cross the street from the gas main to the property line for those properties that previously had gas service.[68]

PG&E had also greatly underestimated this issue. The PWA Report notes that "[u]ntil recently, PG&E had a policy that when a stub could not be located it would be eliminated from the map and from the related records."[69] This policy was demonstrated in an internal audit investigation:

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[64] Exhibit 2, PWA Reply, at 26.

[65] Exhibit 2, PWA Reply, at 27.

[66] See Exhibit 2, PWA Reply, at 27-28.

[67] Exhibit 1, PWA Report, at 34:26-28.

[68] Exhibit 1, PWA Report, Attachment E, at 124.

[69] Exhibit 1, PWA Report, at 35:1-2.

> An internal audit investigation [footnote omitted] in one division found that a foreman/supervisor had reported doing excavations to locate a stub and not finding anything. These excavations were never conducted, but since the policy was to remove the record of the stub from the map based on locating it via excavation, the stub was apparently removed from the map. PG&E did not check other foreman/supervisors and we are not sure whether it checked other records on the individual who may have claimed to be unable to find other stubs.[70]

The PWA Report also points out the scope of this issue, with PG&E's recent realization that there were over 71,000 known subject stubs:

> These unmarked stubs were initially thought by PG&E to be rare but are located throughout the service territory. [footnote omitted] PG&E has recently completed collecting available data in each of its 18 division regarding service stubs. [footnote omitted] Initially PG&E thought that there were on the order of 17,000 stubs but checking records in additional divisions has increased the known total of identified stubs to more than 71,000. These are just the known stubs and, as indicated in recent incidents, there are certainly additional unknown stubs.[71]

Valve position discrepancies are also discussed in the PWA Report:

> A third issue addressed by the six OII examples is valve locations and position. In the OII example in Milpitas, a valve listed as normally open was actually closed and when the feed from the opposite direction was closed to perform a tie in, approximately 1000 customers lost gas service. Similarly, in the additional examples provided, while PG&E was working on a regulator station on October 10, 2014 a valve listed as part of the Napa area Transmission system was closed but it actually was a distribution valve and approximately 250 customers lost gas service.[72]

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[70] Exhibit 1, PWA Report, at 35:2-7.

[71] Exhibit 1, PWA Report, at 34:28-33.

[72] Exhibit 1, PWA Report, Attachment E, at 124.

While PG&E attempts to characterize this issue as an operational matter, rather than a recordkeeping issue, the fact remains that the records did not match the conditions in the field. Under cross-examination by SED, Mr. Higgins testified that the conditions in the field were incorrect, not the records.

> Additionally, we ultimately found this a normally open valve that at some point was inadvertently closed, and the valve is actually open and intended to be open. So the record is actually correct. ***The physical record is actually correct. It is the position of the valve, in fact, in the field that wasn't correct.*** I hope that clarifies.[73]

By this testimony, PG&E appears to be acknowledging that its records did not match the conditions in the field. However, it defends this inconsistency by arguing that the conditions in the field are wrong. This is puzzling testimony. A central reason for maintaining records is to know the conditions in the field. Blaming the conditions in the field for not matching PG&E's records is a defense that should be given no weight.

Further, an electronic test station was not reflected accurately on the map for one the OII incidents:

> [O]ne incident was due to a faulty map that did not show an electronic test station [footnote omitted] (ETS) close to a service that needed to be located. The L&M technician used an ETS located a considerable distance away, and the signal used to locate the pipe was either too weak or associated with the wrong facility. Thus, the locate was not accurate causing an excavator to damage the service and leading to a gas release.[74]

The PWA Report also observes that "it is important to have the location of all ETS stations accurately reflected on maps and records."[75] The PWA Report notes that:

> When L&M crews are forced to rely on signals from stations located a long distance from the area being marked, the

[73] RT at 286:6-15 (Vol. 2) (emphasis added).

[74] Exhibit 1, PWA Report, 34:16-20.

[75] Exhibit 1, PWA Report, Attachment E, at 125.

> strength of the signal from gas lines is drastically reduced. This loss of signal strength may also result from the signal jumping onto other facilities. Thus it is important to utilize the closest ETS to the line being located. Additionally, when ETS stations are a long distances from excavation locations, and the risk of obtaining inaccurate signals is great, L&M crews are still not taking advantage of existing gas line locations shown on readily accessible maps. Using such map information can at a minimum, be a red flag to the L&M crew that signals obtained from remote ETS stations may not be accurate, necessitating further coordination with the excavator to avoid excavation damage to gas lines.[76]

Beyond that, PWA noted the issue of abandoned mains.

> Another area of concern is that abandoned mains are removed from system maps and in some situations they are located close to live mains. This situation has resulted from a PG&E policy [citation omitted] to delete these mains, with some discretion at the Division level as to whether or not to follow through. Thus, when third party excavators, and sometime PG&E crews, uncover an unmarked abandoned line, they may mistakenly believe that it is the live line, and may not exercise the needed care in continuing excavation.[77]

On top of all of the problems and concerns, the PWA Report concludes that PG&E's "ongoing map correction activities are typically opportunistic (i.e., carried out in the normal course of maintenance) rather than proactive."[78] If PG&E seeks to truly reform its system, then it must acknowledge its violations and proactively mitigate and correct its recordkeeping practices.

IV. PG&E HAS KNOWN ABOUT ITS DISTRIBUTION RECORDKEEPING PROBLEMS FOR YEARS

The pervasive problems with PG&E's gas distribution recordkeeping are not new. The PWA Report points to a study PG&E commissioned from the Bechtel Corporation in

[76] Exhibit 1, PWA Report, Attachment E, at 125.

[77] Exhibit 1, PWA Report, Attachment E, at 125.

[78] Exhibit 1, PWA Report, at 2:1-2.

1984, which found that: "[d]uring the data collection process, the area engineers were sometimes confronted with the problem of missing records that prevented them from finding variable values."[79]

PWA also points to recent testimony by Duller and North which determined that:

> … PG&E failed to maintain the records management practices necessary to promote the safety of its patrons, employees and the public. Examples of these failures include the lack of company-wide strategy for record keeping: poor implementation of records management standard practices; inappropriate disposal of pipeline history files; inadequate management and control of job folders; poor metadata quality control; and the uncontrolled distribution, duplication and storage of pipeline related job folders.
>
> As a result of these failures: PG&E's historical pipeline records would not have been readily available, traceable, verifiable or complete; there was no single source of trusted pipeline-related documents, records management was not optimized to support operations, decision making, planning or safety; and inconsistent, incomplete and out of date information would have been present in a significant number of its pipeline related job folders, as well as those systems, such as GIS, which relied upon them.[80]

While the Duller and North testimony focused on transmission, PWA notes that: "[a]s discussed in the report by Duller and North, many of PG&E's current procedures and standards apply to both gas transmission and gas distribution."[81]

Beyond that, as shown at hearings, PG&E has had notice of some of the specific gas distribution recordkeeping issues identified in this proceeding for over a decade. As an example, SED introduced Exhibit 29, a letter dated: March 8, 2001, from PG&E to

[79] Exhibit 1, PWA Report, at 11:10-12 (quoting 1984 Bechtel Report at 13).

[80] Exhibit 1, PWA Report, at 10:14-25 (quoting Duller and North Report, dated: March 5, 2012, at 6-25).

[81] Exhibit 1, PWA Report, at 31, fn. 40.

CPUC staff.[82] In that letter, regarding a gas distribution incident in San Jose, PG&E admits that:

> [F]irst, the main was located incorrectly on the Company's plat map; second, the abandoned facilities were not shown on the Company's plat sheets; and third, the location of the ETS had not been mapped.[83]

Just like the bulk of its testimony in this proceeding, in its 2001 letter, PG&E touts new standards and procedures to mitigate the risk of future incidents.[84] Notably, the CPUC staff letter that PG&E was responding to in 2001 states:

> Having information about the abandoned facilities might have prevented or shortened the recovery time of this incident. … This ETS should have been mapped when first installed, presumably in 1979 … The availability of the ETS would likely have prevented this incident.[85]

When questioned about this document at hearings, Mr. Howe agreed that:

> A. If the violation is observed and as it was here as an example, should an operator attempt to learn from that and determine if there are improvements that should be made and try to pursue those, yes.[86]

Yet, many of these same issues have persisted years later, as shown in the PWA Report.[87] As PWA notes, "[w]eak safety culture has been an historic problem at PG&E."[88]

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[82] Exhibit 29, Letter from S. Bhattacharya to Z. Wong Re: Gas Incident Report - August 2, 2000, San Jose, CA - February 6, 2001 Letter (3/8/2001) (Redacted) ("2001 Correspondence").

[83] Exhibit 29, 2001 Correspondence, at 1.

[84] Exhibit 29, 2001 Correspondence, at 1-2.

[85] Exhibit 29, 2001 Correspondence, at 4.

[86] RT at 201:1-5 (Vol. 2). Though Mr. Howe uses the expression "safety culture" nine times in his prepared testimony, he qualified his expertise on safety culture at hearings, stating: "Depends on how you define 'expert. …'" RT at 200:6 (Vol. 2).

[87] See Exhibit 1, PWA Report, at 34-35.

[88] Exhibit 1, PWA Report, at 75:17.

Ultimately, PG&E's touting of new procedures and policies rings hallow. On this record it is clear that PG&E requires more than reminders to change its practices. Protecting public safety mandates a substantial fine being applied to PG&E.

V. LEGAL ISSUES

A. Public Utilities ("PU") Code § 451 is Applicable to this Proceeding

It should be clear from the OII that PU Code § 451 applies to this proceeding. The OII quotes the code section in its discussion of the initiation of the investigation:

> Delivery of natural gas is potentially dangerous to the general public and to PG&E employees, especially when the distribution facilities are located in populated areas. Both members of the public and PG&E employees are entitled to expect that PG&E will transport gas as safely as reasonably possible. Indeed, California law requires Commission-regulated utilities to operate safely. Section 451 of the Public Utilities Code in part reads: "Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities….. as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public."[89]

However, PG&E takes exception to this aspect of the OII. Mr. Huriaux testified as follows:

> Although I am not offering a legal opinion on the interpretation of Section 451 of the Public Utilities Code, my perspective as a former national pipeline safety regulator is that as a matter of regulatory policy Section 451 does not provide adequate specificity by which a utility can measure compliance. …
>
> Section 451 is a statement of a safety goal. By itself Section 451 contains no standards or objectives against which an operator's performance can be measured.[90]

[89] OII, at 7 (quoting PU Code § 451).

[90] Exhibit 4, Huriaux Report, at 12.

Mr. Huriaux also, among other things, incorrectly advocates for incorporating or referencing other standards in applying PU Code § 451.[91] When SED tested what Mr. Huriaux enforcement scheme would look like at hearings, the following exchange occurred:

> Q. Let's say a company had 100 percent of its plastic inserts unmapped, would that be a violation of recordkeeping requirements, in your view?
>
> A. As I said, that would be very strong evidence you needed to look at that company carefully, but I can't go directly to was there a violation there. I don't know. But obviously that would be a situation that needed to be seriously considered by the relevant authority.[92]

Mr. Huriaux also testified that "[t]here's no specific number at which you suddenly are in violation …"[93] regarding a company with 90 percent of its plastic inserts unmapped. This testimony is remarkable. Under Mr. Huriaux's approach he would not be sure if a company with a ***100% error rate*** in its mapping of plastic inserts would be in violation of any law. In other words, Mr. Huriaux advocates for a standard that cannot be enforced. This approach is legally improper and dangerous to public safety. In SED's view, Mr. Huriaux's critique of the PWA Report, and cursory conclusions that PG&E did not violate any laws should not be given any weight.[94]

Indeed, Mr. Huriaux admits that his perspective is different than the Commission's.

> MR. MOLDAVSKY: I'm going to give you a fact about Public Utilities Code Section 451.
>
> This Commission has applied it to utilities as a basis for penalties. Were you aware of that when you wrote your testimony?

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[91] Exhibit 4, Huriaux Report, at 12-13.

[92] RT at 582:24 – 583:6 (Vol. 3).

[93] RT at 582:15-17 (Vol. 3).

[94] See Exhibit 4, Huriaux Report, at 19.

> A. Yes, I was. And that's why in my testimony I didn't talk about the Commission's position. I talked about my position as a national regulator over many years and that the -- and that that section really didn't contain standards against which performance could be measured. And since the California has adopted the federal pipeline safety regulations, it appears to me that those are the standards against which, as we have been discussing here, against which enforcement should be carried out.[95]

Despite not being an attorney, Mr. Huriaux is permitted to testify that he simply disagrees with the Commission's interpretation of PU Code § 451. However, SED sees nothing in PG&E's argument to justify deviating from the Commission's deeply-rooted perspective, that has recently been applied in the San Bruno OIIs.

1. PU Code § 451 Imposes an Enforceable Safety Obligation on PG&E

In D.15-04-021, the Commission applied PU Code § 451 to the San Bruno proceedings, pursuant to its plain meaning and precedent:

> Both the plain meaning of the language of Pub. Util. Code § 451 and well-established precedent uphold CPSD's reliance on the statute to allege violations. PG&E has been on notice since 1909, as affirmed in the 1960 decision adopting GO 112, that it must at all times maintain safe facilities and operations.[96]

Further, an argument parallel to Mr. Huriaux's belief that PU Code § 451 merely "addresses public utility ratemaking"[97] was rejected by the Commission. Attempting to characterize PU Code § 451 as solely within the statutory scheme as a ratemaking provision was rejected as follows:

> PG&E's "statutory scheme" argument is not persuasive. While it is true that Chapter 4 of the Public Utilities Act is

[95] RT at 583:21 – 584:9 (Vol. 3).

[96] D.15-04-021, at 49.

[97] Exhibit 4, Huriaux Report, at 4.

> entitled "Regulation of Public Utilities," PG&E fails to point out that Chapter 3, where Pub. Util. Code § 451 resides, is entitled "Rights and Obligations of Public Utilities." It is entirely consistent with the Legislature's statutory scheme to find a utility safety obligation in Chapter 3 of the Public Utilities Act.[98]

The Commission also found that "PG&E's attempt to frame Pub. Util. Code § 451 as a balancing of rates and service is not supported by the law."[99] The Commission supports its position by pointing to *Pacific Bell Wireless (Cingular) v. PUC*, where:

> [T]he California Court of Appeal upheld the Commission's imposition of a fine on a wireless carrier under Pub. Util. Code § 451 even though the court found that the Commission was preempted by federal law from regulating rates of wireless carriers. In other words, the court held that the Commission may find violations under the second paragraph of Pub. Util. Code § 451, even where the first paragraph is inapplicable and no balancing of rates and service is at issue.[100]

The Commission further noted that "[t]he text of Pub. Util. Code § 451 is unambiguous—it simply, clearly, and without qualification requires all public utilities to provide and maintain 'adequate, efficient, just, and reasonable' service and facilities as are necessary for the 'safety, health, comfort, and convenience' of its customers and the public."[101]

The Commission also stated that "California Courts have affirmed our interpretation that Pub. Util. Code § 451 imposes a safety requirement and that we have general and specific powers to enforce it."[102] In support of this position the Commission quoted *San Diego Gas & Electric Co. v. Superior Court ("Covalt")*:

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[98] D.15-04-021, at 51.

[99] D.15-04-021, at 51.

[100] D.15-04-021, at 51 (citing *Pacific Bell Wireless (Cingular) v. PUC* (2006) 140 Cal.App.4th 718, 723).

[101] D.15-04-021, at 52.

[102] D.15-04-021, at 52.

> "[T]he commission has broad authority to determine whether the service or equipment of any public utility poses any danger to the health or safety of the public, and if so, to prescribe corrective measures and order them into effect. Every public utility is required to furnish and maintain such "service, instrumentalities, equipment and facilities … as are necessary to promote the safety, health, comfort and convenience of its patrons, employees and the public." (§ 451, italics added.) The Legislature has vested the commission with both general and specific powers to ensure that public utilities comply with that mandate."[103]

There should be no doubt that PU Code § 451 is an enforceable safety standard.

2. Section 451 Provides Sufficient Notice to PG&E that Its Facilities Must Be Operated Safely

More than a decade before the San Bruno cases, the Commission had already held in *Carey v. PG&E* (*Carey*), that PU Code § 451 alone imposed a safety obligation on PG&E.[104] *Carey* was quoted with approval in *Cingular*, which noted that:

> [I]t would be virtually impossible to draft Section 451 to specifically set forth every conceivable service, instrumentality and facility which might be "reasonable" and necessary to promote the public safety. That the terms are incapable of precise definition given the variety of circumstances likewise does not make section 451 void for vagueness, either on its face or in application to the instant case. The terms "reasonable service, instrumentalities, equipment and facilities" are not without a definition, standard or common understanding among utilities.[105]

Cingular also rejected the argument that the utility could not be fined because there was no statute or Commission Order specifically

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[103] D.15-04-021 at 52-53 (quoting *San Diego Gas & Electric Co. v. Superior Court* ("*Covalt*") (1996) 13 Cal. 4th 893, 924.

[104] *Carey v. Pacific Gas & Electric Company* (1999) 85 Cal. P.U.C.2d 682.

[105] *Cingular*, 140 Cal. App. 4th at 741, fn. 10 (quoting *Carey*, 85 Cal. P.U.C.2d at 689).

prohibiting the practices alleged to be violations of PU Code § 451, and explained that there is "no appreciable difference" between the application of PU Code § 451, and the application of California Civil Code §§ 1709 and 1710, which do not enumerate each and every type of fraud prohibited.[106]

Decades earlier, in a case before the California Supreme Court, involving PG&E, it was determined that PU Code § 451 establishes a:

> [G]eneral duty to exercise reasonable care in operating its system to avoid unreasonable risks of harm to the persons and property of its customers.[107]

In D.15-04-021, the Commission cited D.61269, in which it had adopted its first set of natural gas safety standards, but nevertheless specifically recognized that utilities had a pre-existing and continuing responsibility to the public to provide safe service that goes beyond the standards adopted in General Order 112, because no code of safety rules can cover every conceivable situation.[108] The Commission further noted that since 1912, there has been a statutory requirement that public utilities must perform their services and maintain their facilities in a safe manner, citing PU Code § 451 and its predecessor.[109]

Consistent with the above holdings, PG&E had notice that it had a duty to promote safety pursuant to Section 451, and can be fined for its violations of that duty.

3. PG&E Is Precluded from Collaterally Attacking the Legal Issues, Which Were Decided Against PG&E in the San Bruno-Related Decisions

PG&E did not file an application for rehearing of any of the April 9, 2015 decisions in the San Bruno-related OIIs, and it is too late for PG&E to do so at this point

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[106] *Id*. at 742-743.

[107] *Langley v. Pacific Gas and Electric Co.* (1953) 41 Cal.2d 655, 660-661.

[108] D.15-04-021, at 54-55 (citing D.61269).

[109] D.15-04-021, at 270-271 (citing PU Code § 451 and California Public Utilities Act, Article II, Section 13(b)).

in time, because 30 days is the jurisdictional limit.[110] In addition, PG&E cannot raise an issue in any court unless it was first raised in its timely application for rehearing before the Commission. Having foregone its opportunity to challenge the Commission's April 9, 2015 Decisions, PG&E cannot collaterally attack these decisions or the legal issues addressed in these decisions in other Commission proceedings such as the instant OII.[111]

In *Camp Meeker Water System, Inc. v. PUC*, the California Supreme Court determined that:

> Pursuant to section 1709, the commission decision … is binding as "[i]n all collateral actions or proceedings, the orders and decisions of the commission which have become final shall be conclusive."… This court has recognized that when the commission exercises its *judicial power*, its orders or decisions have "the conclusive effect of res judicata as to the issues involved where they are again brought into question in subsequent proceedings between the same parties."[112]

B. Adverse Inferences Should be Drawn Against PG&E Regarding the Missing Records

PG&E's witness, Mr. Howe acknowledges that:

> [W]ith some minor exceptions noted in Chapter 3 of PG&E's reply testimony, PG&E agrees with PWA's description of the six incidents identified in the OII and the other events included in the PWA Report. We also acknowledge their seriousness.[113]

Aside from the fact that this admission language narrows the disputed facts significantly, it also confirms beyond any doubt that PG&E's records, material to the case put forth in the PWA Report are missing and/or inaccurate. In D.15-04-021, an adverse

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[110] PU Code § 1731(b)(1).

[111] See PU Code § 1709.

[112] *Camp Meeker Water System, Inc. v. PUC* (1990) 51 Cal. 3d 845, 852, fn. 3 (emphasis in original) (quoting *People v. Western Air Lines, Inc.* (1954) 42 Cal. 2d 621, 630).

[113] Exhibit 4, Chapter 1: Introduction and Policy ("Howe Testimony"), at 1-4:28-31.

inference was drawn regarding PG&E's admittedly missing records.[114] The same reasoning would support applying adverse inferences in this matter.

D.15-04-021 applied the *Reeves* test to support its application of an adverse inference regarding missing records:

> In order to assess whether to impose an adverse inference against PG&E, we apply the three-part test articulated in *Reeves*:
>
> 1. Did PG&E have an obligation to preserve the documents at the time they were destroyed?
>
> 2. Did PG&E destroy the documents with a "culpable state of mind"?
>
> 3. Are the missing documents relevant to CPSD's investigation of PG&E?[115]

Reeves was deemed applicable based on the following definition of spoliation: "the destruction or significant alteration of evidence, or the failure to preserve property for another's use as evidence in pending or *reasonably* foreseeable litigation."[116] In this case, maintenance of the missing records would have also been reasonably foreseeable litigation documents. Further, as in the San Bruno matter, all three elements of *Reeves* are met.

First, as discussed above, PG&E had an obligation to preserve its documents. D.15-04-021 explained the record-keeping obligation as follows:

> California gas pipeline operators have had an ongoing duty to ensure the safe operations of their pipeline systems since 1912. Although there were no set industry standards for testing and retention of records until the ASME B.31.8 standards were established, in 1935, Pub. Util. Code § 451 (and Article II, Section 13(b) of the Public Utilities Act before that) clearly expected pipeline operators to test their

[114] D.15-04-021, at 44.

[115] D.15-04-021, at 43-46 (citing *Reeves v. MV Transportation* (2010) 186 Cal. App 4th 666, 681-82).

[116] D.15-04-021, at 42 (emphasis added in Commission Decision) (quoting *Reeves*, at 681).

> pipeline systems and maintain the necessary records. PG&E's voluntary compliance of the ASME standards (including recordkeeping requirements) became mandatory with the adoption of GO 112. Since 1970, Federal Regulations require PG&E to keep and maintain for the life of the pipeline component various documents about pipeline repairs and to keep for five years or longer other specified pipeline data [internal citation omitted]. Accordingly, there is no question that PG&E had an obligation to preserve documents relating the maintenance and operation of its pipeline system.[117]

PG&E has not provided any meaningful basis to deviate from the Commission's/PWA's analysis on the recordkeeping requirement. The fact that distribution records, rather than transmission records are at issue in this case is of no moment. Many requirements, such as PU Code § 451, do not distinguish between distribution and transmission records. The first element of *Reeves* is met.

Second, while PG&E may well have destroyed records intentionally or recklessly, per D.15-04-021, only negligence is the test for "culpable state of mind."[118] The first major finding of the PWA Report is:

> Evidence from recent incidents gathered in support of this OII indicates that PG&E has failed to follow the regulations and its procedures regarding record keeping - including both maps and records.[119]

PG&E's witness, Mr. Howe, acknowledges with caveats that "[t]he PWA Report addresses legitimate areas of concern regarding PG&E's gas distribution records."[120] Regardless of whether PG&E's testimony is interpreted as acknowledging the negligence of its distribution recordkeeping, the weight of the evidence compels the conclusion that PG&E was indeed negligent in its distribution recordkeeping.

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[117] D.15-04-021, at 44-45.

[118] D.15-04-021, at 45.

[119] Exhibit 1, PWA Report, at 2:29-31.

[120] Exhibit 4, Howe Testimony, at 1-3:19-21.

The second element of *Reeves* is met as to all of the missing records.

Third, the missing records are relevant. As the PWA Report explains:

> [Loose] controls on records borrowing, some of which have yet to be strengthened, [internal citation omitted] and wide geographic diffusion of storage have caused many of the critical "retained for life" records to be lost over time. Maps incorporating these critical records in as builts including plastic inserts and the locations and characteristics of stubs were apparently not developed.[121]

Further, as articulated in the second major finding of the PWA Report:

> Factors contributing to accidents, incidents and third party damage included: lack of records, maps not being updated in accordance with mapping procedures, and PG&E not maintaining control and updating historical records of gas distribution mains and service lines.[122]

The record clearly shows that PG&E's poor recordkeeping causes accidents. Thus, the missing records are relevant. The third element of *Reeves* is met.

In this case, adverse inferences could be applied in the determination of the amount of time underlying a recordkeeping violation. For example, in the Mountain View Incident, PG&E admitted that "sometime between 1972 and the mid-1980s the plastic line had been inserted."[123] The date of the installation establishes the start date of the continuing violation, as this would be the date when the missing record should have been generated. An adverse inference would thereby toll the violation back to 1972.

Similarly, regarding the missing records from the De Anza Division, adverse inferences could also be applied. As it is unknown how many records are missing per year, nor how consequential each missing record would be, a maximum fine should be applied for the entire subject time period, from January 1, 1979 until December 31, 1991.

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[121] Exhibit 1, PWA Report, at 55:19-22.

[122] Exhibit 1, PWA Report, at 2:32-34.

[123] OII, at 6.

C. Standard of Care

1. The Standard of Care as Presented by PWA is Consistent with Commission Precedent

PWA applies a reasonable person standard in investigating PG&E's past recordkeeping deficiencies.[124] PWA notes that information to demonstrate compliance, understand facilities, and readily locate buried facilities should be maintained.[125]

> In our view, a "reasonable person" would opt to retain and maintain information that engineers and supervisors, considering that the utility is dealing with distribution of a potentially explosive substance that needs to be properly controlled to ensure public safety, would feel necessary to:
>
> - Demonstrate compliance with generally accepted consensus standards such as ASA B31.1.8, ASME B31.8, and eventually Part 192 requirements as well as guidance provided by the AGA for transmission and distribution of gas by pipeline.
> - Understand the basis for design and selection of materials, fittings (valves, drips, couplings and joining techniques), repair methods, methods to connect service lines, pressure control – district regulators, construction techniques, corrosion controls, functional and strength testing, and leakage history.
> - Readily locate buried gas lines during normal operations, maintenance and emergencies, including information needed to locate lines that may exist in non-paved areas; and the location of equipment for shutting down and isolating sections of a main.[126]

[124] Exhibit 1, PWA Report, Attachment D, at 120.

[125] Exhibit 1, PWA Report, Attachment D, at 120.

[126] Exhibit 1, PWA Report, Attachment D, at 120.

PWA articulation of the standard of care is consistent with Commission precedent. For example, regarding gas transmission facilities, the Commission has recently determined that:

> The duty to furnish and maintain safe equipment and facilities is paramount for all California public utilities, including natural gas transmission operators. Furnishing and maintaining safe natural gas transmission equipment and facilities requires that a natural gas transmission system operator ***know the location and essential features of all such installed equipment and facilities***.[127]

Regarding the maintenance of the electric system, PG&E has been on notice of the following duty:

> The duty of due care with which the company was charged consists not only in the proper installation of the dangerous instrumentality but in ***the maintenance thereof in a safe condition at all times*** and places and under the changing circumstances of the particular case. Even if at the outset of the installation of the equipment the company may have been entirely free from fault, yet, if, under changing circumstances, a hazardous condition arose, nonaction or the failure to remedy such condition would constitute culpable negligence.[128]

Accurate records are required for a utility to know the location and essential features of all of its installed equipment and facilities. Accurate records are also necessary for the maintenance thereof in a safe condition at all times. Despite these admonitions, PG&E has deeply flawed records, as exemplified by the incidents in the PWA Report. It is in fact missing a significant volume of records. As the record of this proceeding stands, it is impossible for PG&E to provide assurance that it knows the location and essential functions of all of its installed distribution equipment and facilities.

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[127] D.12-12-030, 2012 Cal. PUC LEXIS 600, at * 29 (emphasis added).

[128] *Lozano v. Pacific Gas and Electric Co.* (1945) 70 Cal.App.2d 415, 422 (emphasis added).

2. The Standard of Care as Presented by PG&E is Far Below What Would be Required for Safe Operation of a Utility System

Through its witnesses, Messrs. Paskett and Huriaux, PG&E proposes a standard of care far below what would be required for safe operation of a utility system. Embedded within Mr. Paskett's selective critique of the PWA Report, the following standard of care is proposed:

> [T]o use the best information and records you have readily available, and over time and through the course of normal business operations, to identify the distribution records that are missing or in need of further improvement and to implement processes and procedures to continuously improve the quality and accuracy of those records.[129]

Mr. Huriaux avers that:

> For operations and maintenance, the standard is reasonable compliance with the regulations and a showing of continuous maintenance and improvement of the maps and records, operations and maintenance manuals, and other requirements of the regulations.[130]

Mr. Huriaux also offers two different articulations for recordkeeping:

> The standard of care for compliance with the federal maps and records requirement at 49 CFR §192.605 is reasonable implementation of the procedures in an operator's O&M Manual and a showing of continuous maintenance and improvement in the accuracy of these records.[131]
> …
> [T]he standard of care for compliance with the maps and records requirements in the pipeline safety regulations is reasonable compliance with the regulations, which includes collection of data in the normal course of business.[132]

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[129] Exhibit 4, Chapter 8: Expert Report of Bruce Paskett ("Paskett Report"), at 4.

[130] Exhibit 4, Huriaux Report, at 5.

[131] Exhibit 4, Huriaux Report, at 1.

[132] Exhibit 4, Huriaux Report, at 7.

PG&E argues for a self-serving concept of relying on "available information," which in practice offers an unearned indulgence for PG&E's volumes of missing records. It is impossible to find violations, under PG&E's approach, if the records are missing.

Further, PG&E's "reasonable compliance" argument runs counter to PU Code § 702, which states:

> Every public utility shall obey and comply with every order, decision, direction, or rule made or prescribed by the commission in the matters specified in this part, or any other matter in any way relating to or affecting its business as a public utility, and shall do everything necessary or proper to secure compliance therewith by all of its officers, agents, and employees.[133]

Fundamentally, PG&E cannot pick and choose which regulations to follow. In other words, under SED's view, a "reasonable person" would comply with the law. Under PG&E's view, a company can only be expected to "reasonably" comply with the law. PG&E's view abrogates the standard and is unenforceable.

Further, the practical effect of PG&E's standard was shown in SED's cross-examination of Mr. Paskett.

> … Would it be acceptable for you if a company had records that were 20 percent accurate with the systems that are in the ground?
>
> A. I think that so long as that company was making concerted effort to improve the quality of records over time in accordance with the state and federal regulations, yes. Now, my goal would be complete and accurate records, but that's not an achievable goal.[134]

The ultimate consequences of PG&E's failures also did not impact Mr. Paskett's view:

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[133] PU Code § 702.

[134] RT at 342:25 – 343:7 (Vol. 2).

> ALJ BUSHEY: Answer my question. If errors persist, is the standard of care violated?
>
> THE WITNESS: In my opinion, no.
>
> MR. MOLDAVSKY: Q. Is that true even if those errors caused explosions and fatalities?
>
> A. I think the answer, short answer to my question is that statement is still correct.[135]

Similarly, as discussed above, Mr. Huriaux was not sure if a company with a ***100% error rate*** in its mapping of plastic inserts would be in violation of any law.[136] Neither a 100% nor an 80% error rate should be tolerated. Persistent errors that cause explosions and fatalities violate an operator's standard of care, and should not be tolerated. PG&E's lax perspectives on standard of care do not promote public safety.

3. PG&E's Mischaracterization of PWA's Presentation of Standard of Care Should Not Be Given Any Weight

Throughout its testimonies and cross-examination, PG&E has put great effort into characterizing PWA's view of the standard of care in an extreme light. The end goal of PG&E's advocacy on this topic is to establish that PWA has set an impossible standard of no mistakes, and thus its conclusions should not be relied on.

PG&E is wrong. While discussion of what sort of violations might be permissible is theoretically interesting, such inquiry is irrelevant to this proceeding. As PWA has already explained:

> The PWA proposed standard of care *as applied in our investigation* - described in Section 6.1 and Attachment D in our initial testimony - did not require perfect maps and records.[137]

PWA has further explained that:

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[135] RT at 337:7-16 (Vol. 2).

[136] RT at 582:24 – 583:6 (Vol. 3).

[137] Exhibit 2, PWA Reply, at 4.

> The standard of care described by PWA also requires – for purposes of this investigation - that, whatever errors exist in PG&E's maps and records, measures must be in place to prevent the occurrence of "impactful events."[138]

PG&E's attempt to overstate PWA's "zero defects" proposal for ***future*** investigations is out of the scope of this retrospective proceeding.[139] In any event, the determination of what future violations to prosecute rests firmly within the discretion of the CPUC.[140] Ultimately, Messrs. Huriaux and Paskett's critiques of the PWA Report should not be given any weight.[141]

VI. THE MOUNTAIN VIEW INCIDENT AND THE CARMEL HOUSE EXPLOSION

In its Report, PWA testified that: "PG&E's handling of the incident at Mountain View (07/30/13), a clear precursor of the incident at Carmel (03/03/14), supports the conclusion that PG&E has failed to comply with … 'learning from experience' regulations; until an incident is sufficiently high profile that action must be taken."[142] The troubling facts of these two incidents demonstrate this point.

A. The Facts of the Mountain View Incident

The OII described the Mountain View Incident as follows:

> On July 30, 2013, at approximately 12:30 pm, a PG&E crew welded a tap fitting onto a 1 ¼ inch steel service line casing in Mountain View. The PG&E welding crew was unaware that the 1 ¼ inch steel service line casing had an inserted one-inch plastic line which was unmapped. The one inch plastic insert melted causing a release of gas which went unnoticed due to the gas traveling down the steel service line casing away from the work area. There were no injuries, fatalities or property damage as a result of this incident.

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[138] Exhibit 2, PWA Reply, at 4.

[139] Scoping Memo at 3.

[140] See Cal. Const. Art. 12.

[141] See Exhibit 4, Paskett Report at 3-5.

[142] Exhibit 1, PWA Report, at 3:7-9.

> According to the SED Investigation Report [internal citation omitted], the crew foreman utilized construction documents for the replacement project as well as the plat map. Neither indicated the presence of the plastic insert. PG&E admitted that sometime between 1972 and the mid-1980s the plastic line had been inserted. The date of pipe manufacture does not narrow down the installation date, as PG&E Gas Standard A-93.1 Revision 1 dated 04-17-73 only limits the length of time that materials can be stored in direct sunlight to no more than one year and does not limit the length of time that polyethylene can be stored.[143]

B. The Facts of the Carmel House Explosion

1. Summary

On March 3, 2014, at approximately 11:15 am, a natural gas explosion destroyed a house located in the city of Carmel-by-the-Sea.[144] Prior to the explosion, a PG&E welding crew had been preparing to tie-in the gas distribution main located along 3rd Avenue into the newly installed plastic main on Guadalupe Street.[145] The PG&E welding crew welded a tapping tee onto a two-inch steel distribution main on 3rd Avenue, when the welding crew discovered that the steel distribution main had an inserted and unmapped 1 ¼-inch plastic line.[146] The inserted plastic main was damaged by the welding and tapping process which caused the natural gas to escape the plastic main.[147] Natural gas migrated into the residential structure, resulting in an explosion.[148] The estimated cost of the damage was $302,000.[149] There were no injuries or fatalities associated with this incident.[150]

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[143] OII, at 5-6.

[144] OII, Appx. A-6, Carmel Incident Investigation Report, at 23.

[145] OII, Appx. A-6, Carmel Incident Investigation Report at 21. The incident that resulted in the explosion was part of an Aldyl-A replacement work in the City of Carmel-by-the-Sea, initiated on November 18, 2013. Canus Inspection had been retained for oversight.

[146] OII, Appx. A-6, Carmel Incident Investigation Report at 22-23.

[147] OII, Appx. A-6, Carmel Incident Investigation Report at 27.

[148] OII, Appx. A-6, Carmel Incident Investigation Report at 28.

[149] OII, Appx. A-6, Carmel Incident Investigation Report at 19.

[150] OII, Appx. A-6, Carmel Incident Investigation Report at 19.

2. Failure Analysis

The PG&E crew had welded and tapped a "save-a-valve" on the 2-inch steel pipe in order to install a pressure gauge and to verify the presence of natural gas in the steel main.[151] Between 10:00 am and 10:15 am, the pressure gauge reading was reported at 48 psig.[152] According to the analysis of PG&E's retained expert, Exponent Failure Analysis Associates ("Exponent"), at this point, gas was flowing down the annular space between the plastic main and steel casing.[153] Between 10:15 am and 10:35 am, the PG&E crew proceeded to weld and tap into the 2-inch steel pipe using an M2 line stopper.[154] During the removal of the tapping tool for the M2 line stopper, a metal and plastic coupon were extracted.[155] The PG&E crew then realized that they were working on an inserted plastic main.[156] According to Exponent, the welding and tapping of the M2 line stopper caused a larger hole on the inserted plastic main causing further release of natural gas from the inserted plastic main.[157]

The gas is believed to have migrated into the soil downwards towards a sewer lateral. Then, the gas migrated through an opening in the sewer lateral. The break in the sewer lateral provided a migration path into the house.[158] Natural gas accumulated inside the house until it reached the explosive limit around the ignition source. The ignition source is suspected to be a stove pilot light.[159]

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[151] OII, Appx. A-6, Carmel Incident Investigation Report at 22.

[152] OII, Appx. A-6, Carmel Incident Investigation Report at 22.

[153] OII, Appx. A-6, Carmel Incident Investigation Report at 27.

[154] OII, Appx. A-6, Carmel Incident Investigation Report at 22-23.

[155] OII, Appx. A-6, Carmel Incident Investigation Report at 22-23.

[156] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

[157] OII, Appx. A-6, Carmel Incident Investigation Report at 27.

[158] OII, Appx. A-6, Carmel Incident Investigation Report at 28.

[159] OII, Appx. A-6, Carmel Incident Investigation Report at 28.

3. Timeline of Event

After the extraction of the coupon, the PG&E crew realized that they had tapped into an inserted plastic main.[160] Upon his return to the site, a Canus Inspector reported that he noticed the plastic coupon on the tapping machine and called the PG&E Central Coast Division Supervisor at 10:38 am.[161] As the call was not answered, the Canus Inspector left a message. At 10:46 am, the Canus Inspector was able to reach the PG&E Central Coast Division Supervisor.[162] The PG&E crew did not have the tools necessary to shut off the gas, thus the PG&E Central Coast Division Supervisor dispatched a PG&E Central Coast division crew ("Division Crew") to respond to the scene.[163] The Division Crew had just finished a leak repair in Pacific Grove when they received the call from the PG&E Central Coast Division Supervisor at 10:52 am. By 11:07 am, the Division Crew was en route. [164]

The house exploded around 11:15 am, approximately half an hour after the PG&E crew realized that the inserted plastic distribution main had been breached.[165]

At 11:16 am, a neighbor called 911. At 11:17 am, the Canus Inspector called 911.[166] At 11:18 am, a fire engine was dispatched. It arrived on the scene at 11:23 am and extinguished a small fire.[167] The fire department reported that: "[t]he Incident Command (IC), after conferring with PG&E supervisors, initiated an approximately 1 block evacuation zone around the explosion site because of concerns that there might be a

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[160] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

[161] OII, Appx. A-6, Carmel Incident Investigation Report at 23. The Canus Inspector stated that there was no smell of gas at the excavation site, but that gas could be smelled west of the bell hole at 3rd Avenue and Guadalupe Street. A pedestrian walking by the area stated that she noticed the gas odor before the explosion.

[162] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

[163] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

[164] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

[165] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

[166] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

[167] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

buildup of natural gas in the area or another structure."[168] This is corroborated by the Carmel Police report, which noted that: "[d]uring the initial assessment of the scene, PG&E requested we evacuate the residence nearby."[169]

Eight minutes after the explosion, at 11:38 am, the Division Crew arrived on the scene.[170] At 11:45 am, the Division Crew stopped the flow of gas by squeezing the steel casing down around the inserted plastic main at the east and west ends of the bell hole.[171]

Table 1[172] shows the events of March 3, 2014:

Table 1: Carmel Incident Timeline (March 3, 2014)

Time	Event
Between 10:00 am and 10:15 am	Installed pressure gauge reading reported at 48 psig.
Between 10:15 am and 10:35 am	PG&E crew welds and taps into the 2-inch steel pipe using an M2 line stopper. After the extraction of the coupon, the PG&E crew realized that they had tapped into an inserted plastic main.
10:38 am	Canus Inspector leaves message for PG&E Central Coast Division Supervisor.
10:46 am	Canus Inspector was able to reach the PG&E Central Coast Division Supervisor.
10:52 am	Division Crew dispatched.
11:07 am	Division Crew en route.
11:15 am	**House explodes.**
11:16 am	Neighbor calls 911.
11:17 am	Canus Inspector calls 911.
11:18 am	Fire Department dispatched.
11:23 am	Fire Department arrives on the scene.
11:38 am	Division Crew arrives on the scene.

[168] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

[169] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

[170] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

[171] OII, Appx. A-6, Carmel Incident Investigation Report at 23.

[172] OII, Appx. A-6, Carmel Incident Investigation Report at 37-38, Appendix B. Timeline.

11:45 am	Division Crew stopped the flow of gas by squeezing the steel casing down around the inserted plastic main.

4. Missing Records associated with the Carmel House Explosion

Regarding the inaccurate records, the OII notes that:

> PG&E admitted that there were no records found on the installation of the inserted plastic on 3rd Avenue. PG&E also admitted that the only available document containing information about the main was Plat 3956-C08 that was used by the PG&E GC welding crew on the day of the incident. The Plat 3956-C08 map showed a 2-inch steel main on 3rd Avenue and did not reflect the inserted 1 ¼-inch plastic line. In addition to the error regarding the main, the Plat 3956-C08 also showed a ¾-inch steel service pipe instead of an inserted ½-inch plastic service.[173]

PWA notes that: "PG&E personnel reacted poorly to the abnormal operating condition and emergency, and were ill-prepared to rapidly shut down or isolate the damaged inserted main, especially since PG&E had outdated maps and did not know the extent of the inserted gas mains in the area."[174] Even Exponent concluded that the root cause of the explosion was: "[i]nadequate verification of system status and configuration when performing work on a live line."[175]

C. The Relationship between the Mountain View Incident and the Carmel House Explosion

Upon review of the subject facts, PWA testified that PG&E failed to take effective remedial action in response to the Mountain View Incident, prior to the Carmel House Explosion.

> From a risk perspective, the underlying cause of both events – the failure to map plastic inserts in metal lines – seemed to warrant the same serious consideration following the

[173] OII, at 7.

[174] Exhibit 1, PWA Report, at 40:9-12.

[175] Exhibit 7, Attachments Supporting PG&E Reply Testimony Chapters 1-5; Volume 3 of 4 (Attachments 76-116) (Redacted), Attachment W166 ("Exponent Report") at W166.075.

> Mountain View incident that it received following the much more consequential (house explosion), and therefore more visible incident in Carmel. The risk implications in both incidents include: unidentified/unmapped plastic inserts in metal lines in PG&E's distribution system; breeching the metal casing in conjunction with maintenance activities requiring drilling, welding or tapping can create both a rupture of the gas containment boundary and a potentially unrestricted path for the gas to flow to inhabited locations. Thus a single action - one that is required as part of frequent maintenance activities – can cause both a release of gas and a path through which the gas can flow to one or more unidentified locations. This seems to be a clear example of the definition of "high risk."[176]

At the hearings, Mr. Singh confirmed the recordkeeping failure as a similarity between the two incidents.

> Q. Mr. Singh, in your view are there any similarities, any similarities between the Mountain View incident and the Carmel incident?
>
> A. The two incidents, one of the similarities is it did not have inserted section of pipe that is reflected on the maps, which I think is consistent with the stipulation of facts for both incidents that submitted were on May 8th of 2015. That's a fact on the record as well.[177]

Further, the issue of unmapped plastic inserts is not isolated to Mountain View and Carmel. After the Mountain View Incident, on February 27, 2014, a "near miss" which involved an unmapped inserted plastic line occurred in PG&E's service territory.[178] PWA also testified that "[s]ince the Mountain View and Carmel unknown plastic insert

[176] Exhibit 1, PWA Report, at 47:8-18.

[177] RT at 450:7-17 (Vol. 3).

[178] OII, Appx. A-6, Carmel Incident Investigation Report, at 33.

incidents, PG&E reported that other unmapped service inserts have been reported under the corrective action program."[179]

After the Mountain View Incident, PG&E should have been aware that an unknown inserted plastic line, inside a steel service line, melted during work by a PG&E welding crew, causing a release of gas.[180] This event should have put PG&E on notice that it has unknown inserted plastic lines inside its metal distribution lines. Work on such facilities can cause the release of gas, which is a safety hazard. A reasonable operator would have taken note of this mode of failure and then taken steps to minimize the risk of recurrence.

Indeed, 49 CFR §192.617 requires that "[e]ach operator shall establish procedures for analyzing accidents and failures, including the selection of samples of the failed facility or equipment for laboratory examination, where appropriate, for the purpose of determining the causes of the failure and minimizing the possibility of a recurrence."[181] Thus, PG&E should have assessed the acknowledged recordkeeping failure in Mountain View, and taken effective measures to reduce the risk of a gas release associated with inserted plastic incidents.

D. PG&E Admits that it Violated Title 49 of the Code of Federal Regulations Part 192.605(b)

For its part, PG&E ***admitted*** that it violated 49 CFR Part 192.605(b) regarding the Mountain View Incident. In a letter dated April 4, 2014, PG&E articulates the admission language.

> In its letter, the SED found PG&E in violation of Title 49 of the Code of Federal Regulations Part 192.605(b). PG&E agrees with this violation.[182]

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[179] Exhibit 1, PWA Report, at 39, fn. 63.

[180] OII, Appx. A-5, Mountain View Investigation Report, at 15.

[181] 49 CFR §192.617.

[182] Exhibit 36, Mountain View Admission Letter, at 1.

At hearings, PG&E attempted to distance itself from the admission. Mr. Singh testified on re-direct as follows:

> Q. Two questions. Directing your attention to the second paragraph, at the time you signed this letter had you formed a conclusion that the facts of the Mountain View incident constituted a violation of Section 605(b)(3) of the federal pipeline safety regulations?
>
> MR. MOLDAVSKY: Objection. The document speaks for itself.
>
> MS. FIALA: I asked what was in his mind.
>
> ALJ BUSHEY: Let's see what the answer is.
>
> Go ahead and answer it.
>
> THE WITNESS: I did not make a legal opinion. I don't have a legal background. What was in my mind was, I received this letter three days after Carmel. That was the focus. We identified the corrective actions that we took immediately after the Carmel incident and that was the focus and the mindset. The mind set at that point wasn't to get into a back and forth about the specific provision of the code from a compliance or noncompliance standpoint.
>
> MS. FIALA: Q. So if it was not in your mind that there was a legal violation, why did you sign this letter.
>
> A. I signed this letter because of the reasons I just stated. That focus was on Carmel. I did not feel it was important to get into a back and forth in terms of the legal issues. It is here is the corrective actions and learning from it and moving forward.[183]

PG&E's attempt to "retract" the admission on the stand should be given no weight. The only fact established by PG&E's retraction attempt is a lack of remorse, which argues for a higher fine.

On re-cross examination by SED, Mr. Singh admitted that the assertions in the admission letter, which had been marked as Exhibit 36, were truthful.

[183] RT at 556:7 – 557:13 (Vol. 3).

> Q. Mr. Singh, do you think it is important when the utility communicates with the Commission, such as by and through letters as identified Exhibit 36, it is important to be truthful, yes or no?
>
> A. We are always truthful.
>
> Q. You were truthful when you wrote the letter that has been marked as Exhibit 36, correct?
>
> A. It speaks for itself. We talked about that that [sic].
>
> Q. I didn't ask if it speaks for itself.
>
> ALJ BUSHEY: Gentlemen, simple, factual questions.
>
> Were you being truthful? Answer with one word. One word answer.
>
> THE WITNESS: Yes.[184]

Adopting PG&E's theory that Mr. Singh did not know what he was signing is illogical. The notion that he did not want to get into a "back and forth" and thus recklessly signed an admission does not comport with his testimony that the letter is truthful. Mr. Singh's signing of a letter that agreed with a violation, with reckless disregard for the truth or falsity of that admission, per PG&E's theory, would harm the regulatory process.

Indeed, the PWA Report, which was issued on September 30, 2015, quotes PG&E's admission language ***twice***, as part of the case to establish PG&E's violation of that code section.[185] The admission letter itself was included in PWA's Report as Attachment G.[186] Yet PG&E's prepared reply testimony ***does not*** offer any "correction" of the admission letter. If Mr. Singh had signed the admission letter with such reckless disregard, as PG&E would have this Commission believe, then PG&E's silence in prepared testimony would have furthered the misimpression.

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[184] RT at 566:3-20 (Vol. 3).

[185] Exhibit 1, PWA Report at 12, fn. 29; 36:6-7.

[186] Exhibit 1, PWA Report, Attachment G.

To the contrary, Mr. Singh knew exactly what he was signing. Putting aside Mr. Singh's 13 years with PG&E,[187] he admitted under cross-examination by SED that the letter was vetted by a team of experts and that he agreed with its contents.

> Q. Okay. Now, when you prepared this letter marked Exhibit 36, prior to sending it to the Commission did anyone at PG&E review it?
>
> A. I have a team of experts who review information and anything that goes under my letterhead. It as part of the process. It is how you manage a business, right? Having a team of experts about the facts and information in front of me. As I review it, I only sign off on the information that I agree with.[188]

Admissions can be used against a utility to support factual findings and fines in Commission proceedings. In the Malibu Canyon Fire OII [I.09-01-018], the Commission considered the admissions of NextG ("[w]e recognize that NextG concedes the alleged violations are largely true")[189] and Southern California Edison Company ("SCE") ("SCE admits that … it violated Pub. Util. Code § 451").[190] In the Rancho Cordova OII [I.10-11-013], PG&E's admissions formed part of the basis to impose a higher fine.[191]

Similarly, the Commission should accept and incorporate PG&E's admission that it violated Title 49 of the Code of Federal Regulations Part 192.605(b) in this proceeding.

E. PG&E's Admission that it Violated Title 49 of the Code of Federal Regulations Part 192.605(b) Evades Disclosure of the Fact that PG&E Lost Over a Decade of Leak Repair Records from the De Anza Division

A more concerning issue underlying PG&E's letter relates to why PG&E would seek to quickly admit to a recordkeeping violation in the Mountain View Incident.

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[187] RT at 456:26 – 457:5 (Vol. 3).

[188] RT at 460:12-23 (Vol. 3).

[189] D.13-09-026, at 22.

[190] D.13-09-028, at 22.

[191] D.11-11-011, at 42, aff'd in D.11-12-021.

The ***April 4, 2014*** letter fails to mention a more troubling recordkeeping shortcoming that had been known to PG&E at the time. Critically, PG&E's letter neglects to mention the missing leak repair records at the De Anza Division from 1979 until 1991. PG&E may have believed that by admitting to a recordkeeping violation, a "back and forth" with SED, which could have possibly resulted in the disclosure and escalation of this disconcerting fact, might be avoided.

PG&E's "Internal Gas Incident Review" regarding the Mountain View Incident indicates an incident review date of ***August 27, 2013***.[192] A date on the bottom of the document indicates ***September 9, 2013***.[193] The identified root cause was: "[t]he inserted 1" plastic service was not mapped. Under current work procedures and processes, GC crew would not have known the plastic service was inserted inside the steel sleeve at the time they welded the fitting."[194] Prominent among the lessons learned the report states that: "[t]he record for the last leak repair for this gas service was missing. Upon further review, all leak repairs done between 1979 and 1991 in the De Anza Division are missing."[195]

On ***February 18, 2014***, PG&E initiated a Corrective Action Program ("CAP") Item regarding the missing records.[196] The identified issue is listed as: "[t]he job was mapped beforehand; however the map did not inclued [sic] the installed plastic line. Reocrds [sic] for a decade is [sic] missing that may have this information."[197] A "task details" section of the document, which appears to have been created on ***March 14, 2014***, 11 days after the Carmel House Explosion, states that:

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[192] Exhibit 6, Attachments Supporting PG&E Reply Testimony Chapters 1-5; Volume 2 of 4 (Attachments 23-75) (Redacted), Attachment W048 ("Internal Gas Incident Review") at W048.001.

[193] Exhibit 6, Internal Gas Incident Review, at W048.001.

[194] Exhibit 6, Internal Gas Incident Review, at W048.002.

[195] Exhibit 6, Internal Gas Incident Review, at W048.003.

[196] Exhibit 6, Attachments Supporting PG&E Reply Testimony Chapters 1-5; Volume 2 of 4 (Attachments 23-75) (Redacted), Attachment W049 ("CAP Item") at W049.001.

[197] Exhibit 6, CAP Item, at W049.001.

> … existing service records was [sic] not updated and existing plat didn't show it was inserted. Leak repair records from 1979 to 1991 in the De Anza division were missing. I have asked employees (mappers, construction, etc[.]) about these records and it was known these records ***were missing for a few years***.[198]

Weeks after this information about the missing records had been gathered by PG&E, on ***April 4, 2014***, Mr. Singh sends SED the Mountain View Admission Letter.[199] As stated above, the document does not mention the missing records from the De Anza Division, nor does it mention the fact that PG&E employees knew about the missing records for years.

On ***November 20, 2014***, the Commission issued the instant OII, with SED's Mountain View Incident Report attached as Appendix A-5. SED's report does not discuss the missing records from the De Anza Division.

The OII orders PG&E to file a report, which among other items should discuss:

> 1. List each factual contention stated, and conclusion reached, by the SED Incident Investigation Reports, regarding PG&E's recordkeeping, that PG&E contends is incorrect, and provide support for PG&E's position.
>
> 2. What explanation does PG&E offer for each recordkeeping failure claimed in the SED incident investigation reports?
>
> 3. What corrective actions has PG&E already taken in response to the recordkeeping failures identified in the SED incident investigation reports?
>
> 4. Provide the names (and titles if employee or agent) of all witnesses to the responses and information in the PG&E report. Provide the name of each such witness with respect to specified portions of the PG&E report.
>
> The ordered report shall be based on information in PG&E's possession.[200]

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[198] Exhibit 6, CAP Item, at W049.002 (emphasis added). The last page of the CAP Items indicated that on 6/17/14 it was concluded that the document search was unsuccessful. CAP Item, at W049.003.

[199] Exhibit 36, Mountain View Admission Letter, at 1.

[200] OII, at 9.

PG&E's "initial" report, filed on ***December 22, 2014***, does not mention the missing records from the De Anza Division, the fact that that PG&E employees knew about the missing records for years, nor the CAP Item. Candidly explaining the recordkeeping failure in Mountain View, with information in PG&E's possession, would have necessarily resulted in the disclosure that over a decade of the De Anza leak repair records were missing. Further, despite a request for the names of all witnesses, PG&E does not identify the name of the person who looked for and could not locate the missing records, as shown on the CAP Item.[201]

In its Final Statement of the Facts, issued on ***May 8, 2015***, PG&E cautions that: "[t]o the extent there are relevant facts outside of the SED Report, those facts do not appear in this Statement of Facts."[202] It does not mention the missing records from the De Anza Division, the fact that that PG&E employees knew about the missing records for years, nor the CAP Item.

PG&E eventually gave up on withholding the glaring fact that it was missing over a decade worth of leak repairs. At hearings, PG&E introduced a data request response from PG&E to SED with relevant information, as Exhibit 33.[203] The document identifies the relevant CAP Item to SED.[204] The document also attempts to characterize all of the missing information as "available today."[205] The PG&E witness field is blank on Exhibit 33.[206] The Cap Item was "previously produced" in ***June of 2015*** in Bates Range "PGE_GDR_000009481 through PGE_GDR_000009483."[207]

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[201] PG&E's Initial Report in Response to OII, dated: December 22, 2015.

[202] Exhibit 6, Attachments Supporting PG&E Reply Testimony Chapters 1-5; Volume 2 of 4 (Attachments 23-75) (Redacted), Attachment W040 ("PG&E's Final Statement of the Facts, dated: April 10, 2015"), at W040.001.

[203] Exhibit 33, PG&E's Supplemental Response No. 1 to Data Request No. 25 Re: Currently Known Missing Document Types ("PG&E's Response to DR 25").

[204] Exhibit 33, PG&E's Response to DR 25.

[205] Exhibit 33, PG&E's Response to DR 25.

[206] Exhibit 33, PG&E's Response to DR 25.

[207] Exhibit 33, PG&E's Response to DR 25.

To assist in review of these facts, SED has prepared the timeline below.

Table 2: De Anza Missing Records Disclosure Timeline

Time	Event
July 30, 2013	Mountain View Incident.
August 27, 2013	Review date for PG&E's Internal Gas Incident Review. Determines that all leak repairs done between 1979 and 1991 in the De Anza Division are missing.
February 18, 2014	PG&E initiates a CAP Item to locate the missing records at De Anza.
March 3, 2014	Carmel House Explosion
March 14, 2014	CAP Item notes that: "it was known these records were missing for a few years."
April 4, 2014	Mountain View Admission Letter neglects to mention missing records.
November 20, 2014	Gas Distribution OII Issued. SED's Mountain View Incident Report is released, without mention of the 12 years of missing records at the De Anza Division.
December 22, 2014	PG&E's Initial Report omits to mention the missing records.
May 8, 2015	PG&E's Final Statement of the Facts omits to mention the missing records.
June 2015	CAP Item turned over to SED.

F. The Missing Leak Repair Records from the De Anza Division are a Substantial Recordkeeping Failure

At the outset, it should be noted that if all of the records were accessible, then the Mountain View Incident, which was due to missing records, would not have occurred. With that fact in mind, Mr. Higgins assurance that "100%" of the records were available, based solely on Exhibit 33, is simply not credible.[208] Indeed, Mr. Higgins admitted that he did not prepare the data request response.[209]

[208] RT at 330:15-23 (Vol. 2).

[209] RT at 331:18-20 (Vol. 2).

Also, PG&E did not establish that every category of data from the missing leak records was stored electronically. Mr. Singh testified as follows:

> A. To restate my response is, if you want me to walk attribute by attribute to do a comparison, I don't have that in front of you.
>
> What I can tell you generally is the information that is included in the electronic leak database, location of the leak, why the leak occurred, what was the repair type of that leak.
> …[210]

To this day, PG&E does not know for certain the date when the Mountain View insert was installed. According to PG&E's Gas Mapper Manual - Section 1, under "Mapping Standards, IV. Miscellaneous, "the year of installation of the service would be reflected on the map."[211] Further, "replaced services, as well as new services installed within an existing service" would have been identified "with the size of the new pipe installed."[212]

Indeed, the existence of insert itself was unknown at the time of the incident. Clearly, significant information is missing from the database.

As discussed above, because PG&E lost the original records, PG&E has the burden to establish that the underlying data is not missing. PG&E's paltry showing on this topic, an unsigned data request response introduced at hearing and non-percipient witness testimony, is not credible, should not be given any weight.

PG&E's violation admission, late disclosure, and lack of showing on this point are significant. Ultimately, common sense compels the conclusion that the substantial volume of missing records at the De Anza Division constitutes a recordkeeping violation.

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[210] RT at 484:11-19 (Vol. 3).

[211] Exhibit 6, Attachments Supporting PG&E Reply Testimony Chapters 1-5; Volume 2 of 4 (Attachments 23-75) (Redacted), Attachment W075 ("Gas Mapper Manual - Section 1"), at W075.028.

[212] Exhibit 6, Gas Mapper Manual - Section 1, at W075.028.

G. Violations Associated with the Mountain View Incident and the Carmel House Explosion

As described above, regarding the facts and circumstances related to the Mountain View Incident, and the Carmel House Explosion, PG&E should be found in violation of: 49 CFR § 192.13(c), 49 CFR § 192.603(b), 49 CFR § 192.605(a), 49 CFR § 192.605(b), PU Code § 451. The categories of violations will be discussed in conjunction with the other incidents related to this investigation.

VII. THE CASTRO VALLEY INCIDENT

The OII describes the Castro Valley Incident as follows:

> On September 17, 2010, at approximately 10:19 am, a third party contractor digging a new storm drain for the City of Castro Valley struck a 1-inch plastic gas service line at a location on San Miguel Avenue in Alameda County. This caused the release of natural gas into the atmosphere, and a service interruption for four customers. There were no fatalities or injuries.
>
> According to the Commission's Safety and Enforcement Division ("SED") Investigation Report [internal citation omitted], PG&E had failed to delineate the pipe sufficiently due to a mapping error. The mapping error resulted from incorrect field documentation of the historical gas service records. Notably, both the 2005 and 2010 five-year leak surveys were conducted based on the erroneous maps. While PG&E stated that it had taken steps to locate underground facilities, including checking the surrounding area for service meters, the SED investigator found a meter at a nearby address on San Miguel Avenue that was visible from the street and was easily located. PG&E asserted that the mapping error had been subsequently corrected. PG&E also admitted that plat map errors are found throughout its service territory.[213]

PWA determined that PG&E did not follow its standard UO S4460 to keep maps updated and accurate.[214] The OII notes the standard:

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[213] OII, at 2.

[214] Exhibit 1, PWA Report, at 37:31-32.

PG&E's UO Standard S4460 which states, in part:

> 'Area and district superintendents and pipeline and facility engineers shall be responsible for ensuring that their assigned copies of the operating maps and operating diagrams are updated and accurate.'[215]

For this incident, for not having accurate construction records, maps and operating history available to operating personnel, PG&E should be found in violation of 49 CFR §192.13(c)**,** 49 CFR §192.605(a), and 49 CFR §192.605(b)(3).[216]

VIII. THE MORGAN HILL INCIDENT

The OII describes the Morgan Hill Incident as follows:

> On June 21, 2012, at approximately 8:50 am, a third party contractor excavating to install a water line struck and damaged an unmarked 3/4-inch steel gas service line causing a release of natural gas. One customer lost gas service and two structures were evacuated as a precaution. There were no injuries or property damage as a result of this incident.
>
> According to the SED Investigation Report [citation omitted], PG&E had failed to locate and mark the 3/4-inch steel service line. PG&E admitted that the damaged service line was built in 1951 and cut (deactivated) at the property line ("P/L") in 1966. The crew at that time only wrote a note in "Remarks" section of the original 1951 Gas Service Record ("GSR") stating that "service was cut back 8 feet out from P/L." The plat map was not updated to show it as a stub (a short section of pipe that is capped and without a riser). This stub also did not appear on PG&E's five-year gas stub review program (Utility Procedure TD-9500P-16).
>
> PG&E also admitted that its employee did not follow internal procedures. For example, the employee did not contact the mapping department before the incident when he failed to locate the stub. In addition, the employee did not communicate to the contractor that there was a possibility of

[215] OII, at 3.

[216] Exhibit 1, PWA Report, at 37:31-34.

> gas line that appears in plat 3541-G1, block 12, which he could not locate. [footnote omitted] During the investigation by PG&E, the employee stated that pressure was felt from a supervisor to complete work and assist a colleague with another USA ticket. Additionally, the Supervisor was made aware of employee opinions that the work load was extremely difficult to manage.
>
> PG&E further admitted that on the day of the incident, the Gas Foreman on the repair crew did not submit a new GSR indicating that the damaged gas service was deactivated at the main after making the repairs. SED believes that PG&E notified appropriate personnel of this issue and requested a new GSR be submitted to local Gas Mapping.[217]

In assessing this incident, the PWA Report observes the following delay and operational failures:

> The 1951 service line was cut at [the] property line in 1966, and in 46 years PG&E had not cut the stub off at the main. The L&M crew noted [the] service on plat map, did not find [the] service riser, presumed [the] service was previously cut off, did not mark [the] stub in field[.] This is a violation of California Government Code 4216.3[](a)(1).[218]

The PWA Report also identifies the following violations in addition to the abovementioned Government Code section: 49 CFR §192.605(a) for not following its procedures and 49 CFR §192.605(b)(3) for not providing up to date operating history of its facilities to appropriate personnel.[219]

IX. MILPITAS INCIDENT I

The OII describes Milpitas Incident I as follows:

> On October 10, 2012, at approximately 12:45 pm, PG&E lost service to 987 customers while a gas construction crew was replacing a six-inch steel gas distribution main with a new four-inch plastic gas distribution main in the vicinity of

[217] OII, at 3-4.

[218] Exhibit 1, PWA Report, at 37:39 - 40:1. PG&E had received a valid USA notification.

[219] Exhibit 1, PWA Report, at 40:7-8.

> Montague Expressway and Great Mall Parkway in Milpitas. There were no injuries or property damage as a result of this incident.
>
> According to the SED Investigation Report [internal citation omitted], PG&E had ran an engineering model and determined that the system would have sufficient back feed to maintain service to customers. However, PG&E admitted that a non-emergency distribution main valve that the engineering model showed to be in the open position was actually in the closed position, preventing back feed to the affected customers. The valve position had been manually transcribed as "OPEN" in PG&E's model based on the plat sheet, which resulted in the inaccuracy in the model conducted prior to the distribution main transfer.[220]

PG&E's statement of the facts admits that "[t]he pressure gauge was not monitored from approximately 1145 hours to 1300 hours."[221] PWA notes that:

> In their reply testimony PG&E states its procedures (PG&E standards A-93.1 and DS0454) did not indicate how long to monitor the gauge pressure before stopping the flow of gas or how often to monitor the gauge pressure after the pipe has been severed throughout the duration of the job. PG&E claims its personnel monitored the pressure on the north end of the job for approximately two hours. PG&E further downplays the importance of verifying that a valve, which was very important to the successful completion of the job activity, was in the open position stating that it must have been closed by mistake while its workers performed work and forgot to re-open it.
>
> We state that the findings in the initial PWA testimony are correct. PG&E failed to monitor the pressure when it was critical to do so, and thus failed to detect the loss in line pressure due to the closed valve, a violation of 192.605(a).
>
> Regardless of whether the valve was closed intentionally or closed due to operator error, the map provided to its operating

[220] OII, at 4.

[221] Exhibit 6, PG&E's Final Statement of the Facts, dated: April 10, 2015, at W040.006.

> personnel did not reflect the correct position of the valve as the mapping standard required of PG&E, a violation of 49 CFR §192.605(b)(3).[222]

X. MILPITAS INCIDENT II

The OII describes Milpitas Incident II as follows:

> On March 4, 2013, at approximately 1:30 pm, a third party contractor dug into a two-inch plastic distribution main while excavating to install a storm drain. The damaged pipe branched off a main running under Main Street near Great Mall Parkway. There were no injuries, no fatalities and no ignition.
>
> According to the SED Investigation Report [internal citation omitted], the facilities were not accurately marked. PG&E admitted that its crew had marked the pipe location six feet away from the actual pipe location. PG&E admitted that the Electronic Test Station ("ETS") station installed in 1994 for this buried pipeline was not marked on the plat map for the area, so that the mark and locate technician was not able to use the most accurate tracer wire lead point for his location survey.[223]

For this incident, PG&E should be found in violation of Government Code §4216.3(a)(1), per the SED Incident Investigation Report, and "49 CFR §192.605(b)(3) - for not providing its construction records, maps and operating history to its L&M crew (the map had not been updated with the location of the nearest ETS installed 1994)."[224]

XI. THE ADDITIONAL INCIDENTS IDENTIFIED IN THE PWA REPORT

A. The Colusa Incident

On March 19, 2009, a PG&E crew struck a 2-inch steel gas main with a backhoe.[225] The PG&E crew had an emergency USA ticket.[226] The 3-inch "steel main was marked,

[222] Exhibit 2, PWA Reply, at 12.

[223] OII, at 5.

[224] Exhibit 1, PWA Report, at 39:13-15.

[225] Exhibit 1, PWA Report, at 19.

[226] Exhibit 4, Higgins Testimony, at 3-34:4.

[but the] L&M crew failed to mark the [2-inch] steel main."[227] According to PG&E: "[t]he crew foreman did not understand that the symbol on the plat map indicated the presence of a bottom tap fitting on the main and that there could be a potential offset from a prior alteration, which there was."[228] Consequently, the 2-inch steel gas main was left unmarked by PG&E. This incident caused a release of natural gas, which is a danger to the public.[229]

For this incident, PG&E is in violation of 49 CFR §192.605(a) and California Government Code 4216.3(a)(1) for failure to locate and mark all subsurface facilities within the delineated excavation area; and 49 CFR §192.605(b)(3) for failure to make construction records, maps and operating history available to operating personnel to support the field personnel in conducting their job responsibilities.[230] Furthermore, as the maps/ records were inconsistent with the L&M staff experience, training and qualifications, that represents a violation of 49 CFR §192.805(h).[231]

B. The San Ramon Incident

On August 12, 2009, a third-party damaged an "unmarked and unmapped [2-inch] diameter service to [a] restaurant."[232] The PWA Report explained that: "PG&E was unable to produce the original service order and did not map the service line after installation. The service line was serving the restaurant since 10/14/97."[233]

This incident resulted in a release of gas, which is a danger to the public.[234] Further, there was a service interruption, and economic harm.[235]

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[227] Exhibit 1, PWA Report, at 19.

[228] Exhibit 4, Higgins Testimony, at 3-34:4-7.

[229] Exhibit 1, PWA Report, at 19.

[230] Exhibit 2, PWA Reply, at 21-22.

[231] Exhibit 2, PWA Reply, at 22.

[232] Exhibit 1, PWA Report at 47.

[233] Exhibit 1, PWA Report at 47.

[234] Exhibit 1, PWA Report at 24.

[235] Exhibit 1, PWA Report at 24.

For this incident, PG&E is in violation of 49 CFR §192.614(c)(5) and California Government Code 4216.3(a)(1) for failure to provide temporary marking of the damaged 2-inch plastic service line; 49 CFR §192.13(c) for failure to follow internal procedures requiring update and maintenance of maps to reflect changes made when the 2-inch service line was installed in 1997; 49 CFR §192.605(b)(3) for failure to provide its locate and mark personnel with accurate map to properly mark and locate its subsurface facilities; and 49 CFR §192.723(b)(2) for failure to perform leak surveys of the service line since its installation in 1997.[236]

C. The Antioch Incident

On March 15, 2010 at approximately 11:00 am, a third party contractor working on a water reclamation project for a golf course struck a 2-inch plastic gas main.[237] PG&E arrived on the scene at 11:39 am, and gas flow was stopped at 2:45 pm.[238] The third party contractor had a valid USA excavation ticket.[239] PG&E admits that the "underground gas line was not marked accurately by PG&E."[240] PG&E believes that "the line was incorrectly marked due to a disconnected locating wire and a stray locating signal."[241] PWA notes that the mark was "14 feet off of actual main location."[242] PWA further notes that the: "L&M crew failed to utilize available map information to assist in determining the location of the gas main."[243] This incident caused the release of gas, which is a danger to the public.[244]

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[236] Exhibit 1, PWA Report at 47.

[237] Exhibit 6, Attachments Supporting PG&E Reply Testimony Chapters 1-5; Volume 2 of 4 (Attachments 23-75) (Redacted), Attachment W062 ("Antioch Letter"), at W062.001.

[238] Exhibit 6, Antioch Letter, at W062.001.

[239] Exhibit 6, Antioch Letter, at W062.001.

[240] Exhibit 6, Antioch Letter, at W062.001.

[241] Exhibit 6, Antioch Letter, at W062.001.

[242] Exhibit 1, PWA Report at 19.

[243] Exhibit 1, PWA Report at 19.

[244] Exhibit 1, PWA Report at 19.

PG&E's defense on this incident, completely fails to explain why mapping was not contacted. The fact that a PG&E supervisor could "find no explanation why the locating signal was not accurate at this location"[245] does not address why mapping was not contacted. PWA notes that per: "Work Procedure 4412-03 page 4, the L&M crew did not contact mapping when the field locate and map did not agree or make sense."[246]

For this incident, PG&E is in violation of 49 CFR §192.614(c)(5) and California Government Code § 4216.3(a)(1) for failure to provide temporary marking of the approximate location[247] for its subsurface facilities; and 49 CFR §192.605(a) for failure to follow its internal procedures which required the locate and mark personnel to contact mapping when the field conditions did not match the maps.[248]

D. The Alameda Incident

On September 28, 2010, at approximately 3:00 pm, a third-party excavator struck and damaged a 4-inch plastic distribution main while installing a telephone conduit in the city of Alameda.[249] The third-party had a valid USA ticket for the excavation work.[250]

The incident resulted in the release of natural gas, which is a danger to the public.[251] There was also an evacuation of residences and the Fire Department's declaration to shelter-in-place.[252] Gas was shut off to a school a half a mile away due to odor.[253]

PWA has testified as follows regarding this incident:

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[245] Exhibit 4, Higgins Testimony, at 3-33:26-27.

[246] Exhibit 2, PWA Reply, at 21.

[247] California Government Code 4216(a) defines "approximate location" as a strip of land not more than 24 inches on either side of the exterior surface of the subsurface installation.

[248] Exhibit 2, PWA Reply, at 20-21.

[249] Exhibit 6, Attachments Supporting PG&E Reply Testimony Chapters 1-5; Volume 2 of 4 (Attachments 23-75) (Redacted), Attachment W060 ("Alameda Letter"), at W060.001.

[250] Exhibit 6, Alameda Letter, at W060.001.

[251] Exhibit 1, PWA Report, at 20.

[252] Exhibit 6, Alameda Letter, at W060.001.

[253] Exhibit 6, Alameda Letter, at W060.001.

> PG&E originally responded in its 30-day letter regarding this incident that one of the "contributing causes" of the missed mark was that "[o]perating records did not match field conditions." The 30-day letter also stated that map corrections had been submitted to the Mapping Department, and that the locator had been retrained and instructed in proper work procedures. The initial PWA testimony reflected these findings. In PG&E's reply testimony, PG&E now states PG&E has re-analyzed the location, and has concluded that the plat map for the location was and is accurate. The cause of the missed locate was likely that the locator misunderstood the position of the property line from which he calculated his marks. As noted, the locator was retrained. No mapping correction was made because no correction was required.[254]

For this Incident, based in part on PG&E's update, PG&E is violation of 49 CFR §192.614(c)(5) and California Government Code § 4216.3(a)(1) for failure to provide temporary markings of the approximate location of its subsurface facilities; and 49 CFR §192.605(a) for failure to follow its procedures which required contacting mapping if the field conditions did not match the available map.[255]

E. The Roseville Incident

On October 21, 2010, a third-party boring contractor struck and damaged a 2-inch plastic gas distribution main.[256] PG&E had mismarked the main.[257] The plat map used by the PG&E locate and mark personnel showed the damaged section of the pipe as located in a joint trench, when it was later determined to be at an offset.[258] The third-party contractor had a valid USA ticket.[259]

[254] Exhibit 2, PWA Reply, at 23-24.

[255] Exhibit 2, PWA Reply, at 24.

[256] Exhibit 1, PWA Report, at 45.

[257] Exhibit 1, PWA Report, at 45.

[258] Exhibit 1, PWA Report, at 21.

[259] Exhibit 1, PWA Report, at 45.

This incident resulted in the release of natural gas, which is a danger to the public.[260] Per the PWA Report, "Six building were evacuated as a precaution, including a nearby restaurant, hotel, and DMV office."[261]

For this incident, PG&E is in violation of 49 CFR §192.13(c) for failure to follow PG&E's Work Procedure 4412-03 which required contacting the mapping department if the field condition did not match the plat map; California Government Code 4216.3(a)(1) for failure to properly mark the approximate location of its subsurface facilities; and 49 CFR §192.605(b)(3) for failure to provide its locate and mark personnel with an accurate map to properly locate and mark the subsurface facilities.[262]

F. The Kentfield Incident

On April 1, 2011, a third-party water contractor struck and damaged a 2-inch plastic distribution main.[263] A nearby abandoned two-inch steel main had been exposed and marked.[264] Its replacement, the two-inch plastic main had been installed by PG&E without tracer wire on December 23, 2010.[265] The new plastic main was not indicated on PG&E's outdated map, nor was it marked in the area of excavation.[266] This incident caused the release of natural gas, which is a danger to the public.[267]

For this incident, PG&E is in violation of 49 CFR §192.13(c) for failure to follow PG&E Mapping Bulletin 05-01, in effect at the time of the incident, to update its records and maps to reflect the plastic main; 49 CFR §192.321(e) for failure to install tracer wire on the plastic main; 49 CFR §192.614(c)(5) and Government Code 4216.3(a)(1) for failure to provide temporary marking for the damaged 2-inch plastic main.[268]

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[260] Exhibit 1, PWA Report, at 21.

[261] Exhibit 1, PWA Report, at 21.

[262] Exhibit 1, PWA Report, at 45.

[263] Exhibit 1, PWA Report, at 43.

[264] Exhibit 1, PWA Report, at 18, 43.

[265] Exhibit 1, PWA Report, at 18, 43.

[266] Exhibit 1, PWA Report, at 18, 43.

[267] Exhibit 1, PWA Report, at 18.

[268] Exhibit 1, PWA Report, at 43.

G. The Sacramento Incident

On October 31, 2011, a horizontal boring contractor damaged a 1 ¼-inch plastic service line.[269] The PG&E locate and mark personnel had mismarked the damaged service line.[270] PWA notes that: "[t]he service line was not accurately updated/mapped to reflect the presence of two offsets in the line. "[271] The locate and mark personnel had also failed "to contact mapping per WP4412-03 when [the] signal was lost during [the] locating of facilities or to advise [the] contractor of [a] potential poor service mark."[272] This incident caused the release of natural gas, which is a danger to the public.[273]

For this incident, PG&E is in violation of 49 CFR § 192.614(c)(5) and California Government Code § 4216.3(a)(1) for failure to provide temporary marking of the approximate location of its subsurface facilities; 49 CFR §192.13(c) for failure to follow its procedure to maintain and update maps; and 49 CFR §192.605(b)(3) for failure to provide its locate and mark personnel with accurate maps to locate its subsurface facilities.[274]

H. The Alamo Incident

On July 24, 2013, a third-party excavator working on a flooded surface hit and damaged a ½-inch plastic service line and an adjacent ¾-inch steel service tee.[275] PG&E was unsuccessful locating the gas facilities.[276] Additionally, the available map did not have the locate dimensions.[277] This incident caused the release of natural gas, which is a danger to the public.[278]

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[269] Exhibit 1, PWA Report, at 46.

[270] Exhibit 1, PWA Report, at 46.

[271] Exhibit 1, PWA Report, at 46.

[272] Exhibit 1, PWA Report, at 46.

[273] Exhibit 1, PWA Report, at 22.

[274] Exhibit 1, PWA Report, at 46.

[275] Exhibit 1, PWA Report, at 22.

[276] Exhibit 1, PWA Report, at 22.

[277] Exhibit 1, PWA Report, at 22.

[278] Exhibit 1, PWA Report, at 22.

PG&E notes that this was an emergency USA ticket.[279] The flooding was caused by a break in a water line, negatively impacting PG&E's available locate and mark instruments.[280] PG&E blames the prior company that generated the map.[281] PG&E also notes that the contractor working the flooded scene "did not hand dig as instructed."[282]

Regardless of where PG&E obtained its map from, it is ultimately responsible for knowing the location of its facilities. The prior company that generated the flawed map would be an "agent" of PG&E.[283] Critically, "PG&E personnel left the site without locating its gas lines."[284]

For this incident, PG&E is in violation of California Government Code § 4216.3(a)(1) for failing to locate and mark its subsurface facilities; and Public Utilities Code § 451 for leaving the site during an emergency (without verifying and marking the location of the gas lines).[285]

I. The Lafayette Incident

On August 27, 2013, damage to a valve and a ¾-inch steel service line resulted due to an "incorrect gas service record which indicated the service line was cut-off."[286] Based on this, the "[l]ocation of [the] service line [was] removed from PG&E's map."[287] The stub had been cut in 2002.[288] After the incident, PG&E cut the service at the main and

[279] Exhibit 4, Higgins Testimony, at 3-34:24.

[280] Exhibit 4, Higgins Testimony, at 3-34:24-26.

[281] Exhibit 4, Higgins Testimony, at 3-34:27 – 3-35:1.

[282] Exhibit 4, Higgins Testimony, at 3-35:4.

[283] See PU Code § 2109.

[284] Exhibit 2, PG&E Reply, at 25.

[285] Exhibit 2, PG&E Reply, at 25.

[286] Exhibit 1, PWA Testimony, at 42.

[287] Exhibit 1, PWA Testimony, at 42.

[288] Exhibit 6, Attachments Supporting PG&E Reply Testimony Chapters 1-5; Volume 2 of 4 (Attachments 23-75) (Redacted), Attachment W053 ("NOV Replies"), at W053.017.

updated its records.[289] This incident caused the release of natural gas, which is a danger to the public.[290]

For this incident, PG&E is in violation of 49 CFR §192.605(a) for failure to follow PG&E Standard S4129 which required cutting off services as close to the main as possible; 49 CFR §192.727(b) for failure to properly abandon or deactivate the gas service; 49 CFR §192.614(c)(5) and California Government Code 4216.3(a)(1) for failure to provide temporary marking of all its subsurface facilities within the delineated excavation area.[291]

J. The San Francisco Incident

On April 8, 2014, a third-party excavator struck and pulled a mismarked 1-inch plastic gas service line.[292] The 1-inch plastic service line pulled off of its connection to an 8-inch steel line.[293] The excavator had a valid USA ticket.[294]

The PG&E locate and mark personnel failed to locate and mark the 8-inch steel main.[295] Instead, the locate and mark personnel marked an inactive distribution main located approximately 6 feet from the active line.[296] PG&E failed to mark the portion of the 1-inch plastic service located between the inactive and active mains.[297] Thus, the excavator damaged the 1-inch plastic service line located between the marked inactive distribution main and the active 8-inch steel distribution main.[298] This incident caused

[289] Exhibit 1, PWA Testimony, at 16.

[290] Exhibit 1, PWA Report, at 22.

[291] Exhibit 1, PWA Testimony, at 42.

[292] Exhibit 1, PWA Report, at 23.

[293] Exhibit 1, PWA Report, at 23.

[294] Exhibit 1, PWA Report, at 23.

[295] Exhibit 1, PWA Report, at 23.

[296] Exhibit 1, PWA Report, at 23.

[297] Exhibit 6, Attachments Supporting PG&E Reply Testimony Chapters 1-5; Volume 2 of 4 (Attachments 23-75) (Redacted), Attachment W055 ("List of Incidents with Probable Violations"), at W055.003.

[298] Exhibit 1, PWA Report, at 23.

the release of natural gas, which is a danger to the public.[299] There was also a service interruption.[300]

For this incident, PG&E is in violation of 49 CFR §192.614(c)(5) and California Government Code 4216.3(a)(1) for failure to properly mark and locate the approximate location of the active 8-inch steel gas distribution main.[301]

K. The Fresno Incident

On September 24, 2014, a PG&E gas crew struck and damaged a mismarked 1-inch plastic gas service line.[302] The PG&E crew had a valid USA ticket.[303] The plat map used by the locate and mark personnel did not reflect the offset information from historical work completed on August 1, 1983.[304] This incident caused the release of natural gas, which is a danger to the public.[305] There was also a service interruption.[306]

For this incident, PG&E is in violation of 49 CFR §192.605(a) for failure to follow its internal mapping standard 410.21-1 and update its records to reflect the work completed on the damaged service line in 1983; and 192.605(b)(3) for failure to provide its personnel with accurate maps to locate its subsurface facilities.[307]

L. San Jose Incident I

On November 7, 2014, at approximately 11:00 am, a third-party excavator struck and damaged a 2-inch plastic distribution main with a backhoe near the intersection of Market and Santa Clara Streets in downtown San Jose.[308]

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[299] Exhibit 1, PWA Report, at 23.

[300] Exhibit 1, PWA Report, at 23.

[301] Exhibit 1, PWA Report, at 46.

[302] Exhibit 1, PWA Report, at 23.

[303] Exhibit 1, PWA Report, at 23.

[304] Exhibit 1, PWA Report, at 23.

[305] Exhibit 1, PWA Report, at 23.

[306] Exhibit 1, PWA Report, at 23.

[307] Exhibit 1, PWA Report, at 46.

[308] Exhibit 6, Attachments Supporting PG&E Reply Testimony Chapters 1-5; Volume 2 of 4 (Attachments 23-75) (Redacted), Attachment W057 ("San Jose I - Incident Investigation Report"), at

The SED investigation found that PG&E failed to respond to the excavator's USA ticket within two working days.[309] The third-party excavator submitted a USA request for locate and mark on November 3, 2014, with a "Work Begins" date of November 5, 2014 at 11:30 am.[310] On November 5, 2014, PG&E attempted to contact the excavator by leaving a voice message.[311] The third-party excavator did not return PG&E's call and assumed that the yellow pipeline markings[312] in the excavation area were indications that they were cleared to start excavation.[313] SED found that PG&E's attempt to contact the excavator began only about an hour before the "Work Begins" date and time indicated on the USA request.[314] Notably, the excavation damage occurred on November 7, 2014, five days after the USA request was made by the excavator.[315]

This incident caused the release of natural gas and approximately 2,500 people to be evacuated from a nearby business.[316] Property damage was $105,000.[317]

For this incident, PG&E is in violation of 49 CFR §192.605(a) for failure to follow PG&E's damage prevention handbook TD 5811M which requires notification of a PG&E supervisor if the excavator is unavailable or unable to renegotiate a later agreeable date to complete the locate and mark; 49 CFR §192.614(c)(6) and California Government Code 4216.3(a)(1) for failure, within two working days, or a negotiated mutually agreeable date, to locate and mark its subsurface facilities.[318] PWA also testifies that:

W057.001.

[309] Exhibit 6, San Jose I - Incident Investigation Report, at W057.001.

[310] Exhibit 6, San Jose I - Incident Investigation Report, at W057.004.

[311] Exhibit 6, San Jose I - Incident Investigation Report, at W057.004.

[312] Yellow pipeline markings are used to indicate presence of natural gas facilities.

[313] Exhibit 6, San Jose I - Incident Investigation Report, at W057.003-W057.004.

[314] Exhibit 6, San Jose I - Incident Investigation Report, at W057.004.

[315] Exhibit 6, San Jose I - Incident Investigation Report, at W057.004.

[316] Exhibit 6, San Jose I - Incident Investigation Report, at W057.001.

[317] Exhibit 6, San Jose I - Incident Investigation Report, at W057.002.

[318] Exhibit 1, PWA Report, at 43.

> PWA has also identified a PG&E work practice that is in violation of California Government Code 4216. Work Procedure 4412-03 page 4 item 1 states that a positive response to the excavator is required but lists under item 1C that a fax, email or automated response system may meet the contact requirements. This is a violation of California Government Code 4216.3(a)(1).[319]

M. San Jose Incident II

On January 20, 2015, a third-party excavator hit and damaged a 1 ¼-inch steel stub extending from a 4-inch steel main.[320] The main is indicated as having been marked, however, the damaged steel stub was not on PG&E's map.[321] This incident caused the release of natural gas, which is a danger to the public.[322] This resulted in a "major traffic diversion [and] 12 businesses in [a] strip mall [being] evacuated."[323]

For this incident, PG&E is in violation of 49 CFR §192.605(a) for failure to follow PG&E's mapping standard 410.21-1 to update map to reflect the location of the stub; 49 CFR §192.605(b)(3) failure to provide its locate and mark personnel with accurate and complete records to sufficiently respond to the USA and locate and mark all subsurface facilities within the delineated area; 49 CFR §192.614(c)(5) and California Government Code 4216.3(a)(1) for failure to locate and mark all of its subsurface facilities within the delineated excavation area.[324]

XII. MAOP-ASSOCIATED VIOLATIONS

PWA testifies at length about the failure of PG&E to appropriately set MAOP for the subject systems.[325] As the PWA Report explains, PG&E "relied on either certification of the maximum operating pressure during the five years from 1965 through 1970, or use

[319] Exhibit 2, PWA Reply, at 18.

[320] Exhibit 1, PWA Report, at 15.

[321] Exhibit 1, PWA Report, at 15.

[322] Exhibit 1, PWA Report, at 15.

[323] Exhibit 1, PWA Report, at 15.

[324] Exhibit 1, PWA Report, at 42.

[325] Exhibit 1, PWA Report, at 49-54.

of pressure records during the mid to late 1970s … , as the basis for the MAOP. Both approaches are … unapproved alternatives to those described in the regulation."[326] Further, in an internal letter to Division Managers, PG&E admitted that "a recent system-wide audit disclosed that many of our distribution systems lack tangible documentation of operating pressures for that five years period".[327]

There should be no doubt that PG&E is in violation of 49 CFR §§ 192.603(b) and 192.619(c), for having the pertinent records missing for the timeframe between June 1, 1965 through June 1, 1970. As Mr. Singh testified on re-direct:

> Q. You recall earlier Mr. Moldavsky or her Honor asked you whether you are aware of any category of missing records besides De Anza. Would you like to correct that answer?
>
> A. Thank you. Yes, I would.
>
> Q. Please go ahead. Just to correct the answer or supplement the answer you gave earlier, are you aware of any additional categories of missing records besides the De Anza records?
>
> A. It is the 1965 to 1970 MAOP records to establish the MAOP of the distribution system, but we have a procedure and we've had one since 1978 to address that.
>
> Q. But those are also missing records?
>
> A. That is correct.[328]

Such missing records are well-within the scope of this OII.

Mr. Singh testified on re-direct:

> A. Well, specifically for distribution MAOP, wasn't aware of any records prior to '65 that were required to be maintained.[329]

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[326] Exhibit 1, PWA Report, at 49:8-11.

[327] Exhibit 1, PWA Report, at 49:28-30.

[328] RT at 555:15 – 556:2 (Vol. 3). PWA notes that PG&E's "workaround necessitated by the associated recordkeeping deficiencies is a clear violation of 49 CFR §192.619(c)." Exhibit 1, PWA Report, at 54:2-3.

[329] RT at 570:26-28 (Vol. 3).

Contrary to Mr. Singh's testimony, PG&E was required to keep such records pursuant to GO 112 and 49 CFR Part 192, but failed to do so. In California, as set forth in GO 112, effective January 17, 1961:

> §301.1 – The responsibility for the maintenance of necessary records to establish compliance with these rules has been accomplished rests with the utility. Such records shall be available for inspection at all times by the Commission or the Commission staff.
>
> §302.1 – "Specifications for material and equipment, installation, testing and fabrication shall be maintained by the utility.
>
> §303.1 – "Plans covering operating and maintenance procedures, ***including maximum allowable operating pressure to which the line is intended to be subjected***, shall be maintained by the utility.[330]

Additionally, General Order 58A, effective July 1, 1932, and incorporated in General Order 112, prescribes Standards for Gas Service in California required:

> Section 5 – Station records
>
> a) Each gas utility shall keep and preserve, for a period of at least two (2) years, an accurate record of the pressures maintained on each main leading from each manufacturing plants and from each compressing, receiving and/or dispatching station on it system. Such records may be kept in the form of pressure gauge charts.
>
> Section 20 – Pressure Testing Equipment and Tests
>
> a) Each gas utility shall own and maintain at least one recording pressure gauge on each principal distribution main leaving each gas manufacturing plant, compressor or holder station and no utility shall maintain less than two such gauges unless specifically relieved in writing by the Commission. Pressure

[330] See Exhibit 1, PWA Testimony, at 28.

> charts taken from such gauges shall be preserved as a continuous record for a period of at least two years.
>
> b) Each gas utility shall own and maintain at least one low pressure, portable recording pressure gauge for each one hundred (100) miles or fraction thereof of low pressure main in any district as may be ruled a separate distributing system by the Commission.
>
> c) On high pressure distribution systems, gas utilities shall maintain permanently located pressure gauges at critical points and shall preserve in the district or division offices the charts from these gauges as a continuous record for a period of at least two (2) years.

In fact, at the time General Order 112-C adopted the federal regulations, including 49 CFR § 192.619(c), California regulations contained specific recordkeeping requirements on distribution system pressure records. Instead, as stated above, PG&E failed to maintain the necessary records to establish the MAOP of approximately 243 distribution systems, and to establish compliance with the regulations.

In its testimony, PG&E claims that its alternative practice of establishing distribution MAOP using post-1970 leak survey is consistent with the 1998 PHMSA guidance.[331] It also argues that the 1998 PHMSA guidance did not specifically reference a need for an "approval" with its regulatory agency if the distribution system records are missing or incomplete to conclusively determine the MAOP.[332]

However, as set forth in General Order 112-C:

> §105.1 – There shall be no deviation from this General Order except after authorization by the Commission. If hardship results from application of any rule herein prescribed because of special facts, application may be made to the Commission to waive compliance with such rule in accordance with Section 3(e) of the Natural Gas Pipeline Safety Act of 1968. Each request for waiver shall be accompanied by a full and complete justification.

[331] Exhibit 4, PG&E Reply Testimony, Operational Improvements, Controls, and MAOP ("Singh Testimony"), at 5-17:18-22.

[332] Exhibit 4, Singh Testimony, at 5-18:1-4.

Furthermore, 49 United States Code § 60118 prescribes the requirements for waivers by State Authorities under the State pipeline safety program certification. PG&E failed to obtain a written waiver from the Commission on its alternative practice of establishing MAOP.

XIII. PENALTY ASSESSMENT

The Commission has traditionally applied the factors articulated D.98-l2-075 for setting fines. Per D.98-l2-075, the factors considered in this penalty assessment will include: the severity of the offense, the conduct of the utility, the financial resources of the utility, the totality of the circumstances in furtherance of the public interest, and the role of precedent.[333]

SED recommends a total fine of **$111.926 million** based on its assessment of these factors, as explained below.

A. Severity of the Offense

1. Physical Harm

D.98-l2-075 observes that "violations which caused actual physical harm to people or property are generally considered the most severe, with violations that threatened such harm closely following."[334]

Direct physical harm to property is exemplified by the Carmel House Explosion. A house that was destroyed as a result of PG&E's actions. Though no one was in the impacted property, if persons had been, the Carmel House Explosion could have resulted in serious injuries and/or fatalities. Mayor Burnett testified as follows regarding the blast:

> PG&E's own workers were shielded from the blast by their service truck, which may have saved their lives. [internal citation omitted] … The blast sent building debris just over the heads of crews and residents walking nearby. Shrapnel

[333] D.98-12-075, 1998 Cal. PUC LEXIS 1018, *88-96.

[334] D.98-12-075, 1998 Cal. PUC LEXIS 1018, *89.

> was hurled into neighboring houses and windows were blown in by shock waves. … I can testify that the explosion caused a terrifying threat to life and limb in the Carmel community that the Commission should not ignore. … I have personally spoken with several neighbors near the explosion and they recounted to me the terrifying jolt they felt and heard from the nearby explosion. Moreover, it was pure serendipity that no one was killed or injured.[335]

The frightening and damaging physical impact of this avoidable incident weighs heavily in favor of a substantial fine regarding the causal Carmel House Explosion recordkeeping violations.

This investigation is also rife with violations threatening physical harm. As discussed above, the Castro Valley Incident, the Morgan Hill Incident, Milpitas II, the Mountain View Incident, the Carmel House Explosion, the Colusa Incident, the San Ramon Incident, the Antioch Incident, the Alameda Incident, the Roseville Incident, the Kentfield Incident, the Sacramento Incident, the Alamo Incident, the Lafayette Incident, the San Francisco Incident, the Fresno Incident, San Jose Incident I, and San Jose Incident II, all resulted in the dangerous release of natural gas. In other words, 18 out the 19 incidents highlighted by the PWA Report resulted in this hazardous condition. Only Milpitas Incident I did not result in the release of natural gas. However, that incident resulted in a service outage for almost 1,000 people. Such a pervasive outage comes with its own inherent risks for physical harm.

Also discussed above are PG&E's recordkeeping and mapping failures, which further endanger the public. The De Anza missing records, spanning over a decade, further demonstrates the risk to public safety. Indeed, PG&E's tracer wire problems, taken together with its recordkeeping violations, compounds the risk of physical harm from future unmapped facilities that are difficult to detect by L&M crews.

This factor supports the recommended fine.

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[335] Exhibit 44, Prepared Direct Testimony of Mayor Jason Burnett on Behalf of the City of Carmel-by-the-Sea ("Mayor Burnett Testimony"), at 3:10-11, 15-17, 22-24; 4:2-4.

2. Economic Harm

Economic harm is also considered in assessing a penalty. D.98-l2-075 notes that:

> Economic harm reflects the amount of expense which was imposed upon the victims, as well as any unlawful benefits gained by the public utility. Generally, the greater of these two amounts will be used in establishing the fine. … The fact that the economic harm may be difficult to quantify does not itself diminish the severity or the need for sanctions.[336]

This investigation includes difficult to quantify economic harm. As an initial matter, the record reflects some accounting of property damage regarding certain incidents.

Castro Valley Incident:	$2,000[337]
Morgan Hill Incident:	$2,000[338]
Milpitas Incident II:	$2,000[339]
Mountain View Incident:	$10,000[340]
Carmel House Explosion:	$302,000[341]
San Jose Incident I:	$105,000[342]

This sample does not account for all of the property damage of all of the incidents. Further, the "salvage" value of the Carmel House is likely far less than its market value.

In any event, considerations other than property value demonstrate economic harm. For example, evacuations and service interruptions may also have significant economic effects on the persons impacted. The following incidents, in SED's view, had such economic impacts on a substantial number of customers:

Milpitas Incident I: Service interruption to 987 customers.[343]

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[336] D.98-12-075, 1998 Cal. PUC LEXIS 1018, *89.

[337] OII, Appx. A-1, at 1.

[338] OII, Appx. A-2, at 4.

[339] OII, Appx. A-4, at 12.

[340] OII, Appx. A-5, at 15.

[341] OII, Appx. A-6, at 20.

[342] Exhibit 6, San Jose I - Incident Investigation Report, at W057.001

[343] OII, at 4.

Alameda Incident:	Alameda Fire Department "blocked off streets, evacuated three residences, and declared a shelter in place." Gas was shut off at a nearby school.[344]
Roseville Incident:	"Six buildings were evacuated as a precaution, including a nearby restaurant, hotel and DMV Office."[345]
San Jose Incident I:	2,500 people evacuated from a nearby business.[346]
San Jose Incident II:	Major traffic diversion and 12 businesses evacuated.[347]

The number of impacted customers does not have to be numerous for economic harm to occur. Weight should be given on this factor regarding incidents that impacted fewer customers including, for example:

Castro Valley Incident:	Service interruption to four customers.[348]
Morgan Hill Incident:	Service interruption to one customer and two structures were evacuated.[349]
San Ramon Incident:	Service interruption to one customer.[350]
San Francisco Incident:	Service interruption to one customer.[351]
Fresno Incident:	Service interruption to one customer.[352]

Mayor Burnett also identifies public trust harm, which is difficult to quantify:

> Although it has been over a year-and-a-half, our residents continue to grapple with their fears regarding that basic sense of safety they should feel in their own homes. The Carmel

[344] Exhibit 6, Alameda Letter, at W060.001.

[345] Exhibit 1, PWA Report, at 21.

[346] Exhibit 6, San Jose I - Incident Investigation Report, at W057.001

[347] Exhibit 1, PWA Report, at 15.

[348] OII, at 2.

[349] OII, at 3.

[350] Exhibit 1, PWA Report, at 24.

[351] Exhibit 1, PWA Report, at 23.

[352] Exhibit 1, PWA Report, at 23.

> community has been harmed as a result of the March 3, 2014 explosion and the misconduct that led to it.[353]

This factor supports the recommended fine.

3. Harm to the Regulatory Process

D.98-12-075 notes that: "compliance is absolutely necessary to the proper functioning of the regulatory process. For this reason, disregarding a statutory, or Commission directive, regardless of the effects on the public, will be accorded a high level of severity."[354]

For this factor, SED will limit its discussion to PG&E's failure to timely disclose its knowledge of the missing De Anza records. Providing safe service to customers necessarily requires effective communication with the Commission. This duty requires PG&E to disclose such material facts as missing over a decade worth of leak repair records to the Commission.

On November 20, 2014, the Commission issued the instant OII, attaching the SED Mountain View Report.[355] Indeed, the Mountain View Incident was discussed in the OII itself.[356] Despite the resources that the Commission had allocated towards launching this formal investigation, there is no discussion about the missing De Anza Records. PG&E, on the other hand, knew about the missing records since at least August 27, 2013.[357]

When the Commission weighed in seeking a report on the Mountain View Incident, based on knowledge in PG&E's possession, PG&E should have disclosed its knowledge of the missing records. PG&E failed to do so on December 22, 2014 when it filed its "Initial Report in Response to OII."[358] PG&E also missed an opportunity to

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[353] Exhibit 44, Mayor Burnett Testimony, at 6:6-9.

[354] D.98-12-075, 1998 Cal. PUC LEXIS 1018, *90-91.

[355] OII, Appx. A-5.

[356] OII, at 5-6.

[357] Exhibit 6, CAP Item, at W049.

[358] PG&E's Initial Report in Response to OII.

disclose this information when it released its "Final Statement of the Facts" on May 8, 2015.[359]

PG&E should be reminded that the Commission and its staff are not operating on a "need-to-know" basis with PG&E. It should not have taken an OII to pry this information from PG&E.

PG&E has a duty to disclose even troubling facts to the Commission. PG&E's failure to do so makes a mockery out of the regulatory compact. PG&E's failure harmed the regulatory process.

4. Number and Scope of Violations

The large number and scope of the violations in this matter justifies a substantial fine. PU Code § 2108 permits the accrual of continuing violations on a daily basis. Such a daily basis was used in fine calculations for certain critical failures. Other fines were assessed on a weekly or a monthly basis. Such recommendations are premised on a consideration of the totality of the circumstances, including PG&E's actions in mitigation.[360]

a) Category 1: Violations for Failure to Follow Written Procedures to Maintain and Update Operating Maps and Records

PG&E has violated 49 CFR §§ 192.605(a) for failing to follow its written procedures to maintain and update its operating maps and records. This was demonstrated in the Incidents identified in the PWA Report, and the SED Inspections of the San Francisco and San Jose Divisions. Recommended fines for these violations were calculated as follows:

(1) **Castro Valley Incident**: Based on the available evidence, SED recommends that this violation be assessed from the 2005 leak survey until the incident date on September 17, 2010. Compounding the violation

[359] Exhibit 6, PG&E's Final Statement of the Facts, dated: April 10, 2015, at W040.

[360] See, e.g., PWA Report, Table 9, at 59-67.

monthly, at $20,000 per PU Code § 2107, during this time period per PU Code § 2108, results in a fine of **$1.38 million.**

(2) **Morgan Hill Incident**: Based on the available evidence, SED recommends that this violation be assessed from the July 1966 deactivation until the incident date on June 21, 2012. From July 1966 until December 31, 1993, SED recommends a maximum base fine of $2,000 per PU Code § 2107. From January 1, 1994 until December 31, 2011, SED recommends a maximum base fine of $20,000 per PU Code § 2107. From January 1, 2012 until June 21, 2012, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$5.278 million.**

(3) **Milpitas Incident I**: Based on the available evidence, SED recommends that this violation be assessed at the pre-1994 maximum base fine of $2,000 per PU Code § 2107, multiplied by the number of customers impacted. The pre-1994 maximum was used, rather than subsequent, higher maximum fines, in part because the date of the error is not established on the record. SED also considered the fact that this incident did not result in a release of gas, yet did result in a service interruption to 987 customers. This results in a fine of **$1.974 million.**

(4) **Milpitas Incident II**: Based on the available evidence, SED recommends that this violation be assessed from the 1994 ETS installation date until the incident date on March 4, 2013 From 1994 until December 31, 2011, SED recommends a maximum base fine of $20,000 per PU Code § 2107. From January 1, 2012 until March 4, 2013, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$5.02 million.**

(5) **Mountain View Incident**: Based on the available evidence, SED recommends that this violation be assessed from the plastic insert vintage of June 1972 until the incident date on July 30, 2013. From June 1972 until December 31, 1993, SED recommends a maximum base fine of $2,000 per PU Code § 2107. From January 1, 1994 until December 31, 2011, SED recommends a maximum base fine of $20,000 per PU Code § 2107. From January 1, 2012 until July 30, 2013, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$5.786 million**.

(6) **Carmel House Explosion**: Based on the available evidence, SED recommends that this violation be assessed from the plastic insert manufacturing date of July 17, 1997, until the incident date on March 3, 2014. From July 17, 1997 until December 31, 2011, SED recommends a

maximum base fine of $20,000 per PU Code § 2107. From January 1, 2012 until March 3, 2014, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Given the gravity of the explosion, SED recommends compounding the violation weekly, during the subject time period per PU Code § 2108. This results in a fine of **$20.73 million**.

(7) **San Ramon Incident**: Based on the available evidence, SED recommends that this violation be assessed from the October 14, 1997 service line installation date until the incident date on August 12, 2009. From October 14, 1997 until August 12, 2009, SED recommends a maximum base fine of $20,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$2.84 million.**

(8) **Kentfield Incident**: Based on the available evidence, SED recommends that this violation be assessed from December 23, 2010 installation date of the plastic main until the incident date on April 1, 2011. From December 23, 2010 until April 1, 2011, SED recommends a maximum base fine of $20,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$60,000.**

(9) **Sacramento Incident**: Based on the available evidence, SED recommends that this violation be assessed at a maximum fine on the incident date of October 31, 2011, per PU Code § 2107, of **$20,000.**

(10) **Fresno Incident**: Based on the available evidence, SED recommends that this violation be assessed from the installation date of August 1, 1983 until the incident date on September 24, 2014. From August 1, 1983 until December 31, 1993, SED recommends a maximum base fine of $2,000 per PU Code § 2107. From January 1, 1994 until December 31, 2011, SED recommends a maximum base fine of $20,000 per PU Code § 2107. From January 1, 2012 until September 24, 2014, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$6.22 million.**

(11) **San Jose Incident II**: Based on the available evidence, SED recommends that this violation be assessed at a maximum fine on the incident date of January 20, 2015, per PU Code § 2107, of **$50,000.**

(12) **SED inspection of San Francisco Division – Leak #1**: Based on the available evidence, SED recommends that this violation be assessed from the installation date of December 19, 2013, until the SED inspection on August 7, 2015. From December 19, 2013 until August 7, 2015, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$1 million.**

(13) **SED inspection of San Francisco Division – Leak #2:** Based on the available evidence, SED recommends that this violation be assessed from the installation date of May 29, 2013 until the SED inspection on August 7, 2015. From May 29, 2013 until August 7, 2015, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$1.3 million**.

(14) **SED inspection of San Jose Division – Leak #1**: Based on the available evidence, SED recommends that this violation be assessed from the installation date of October 4, 2013 until the SED inspection of July 17, 2015. From October 4, 2013 until July 15, 2015, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$1.05 million.**

(15) **SED inspection of San Jose Division – Leak #2**: Based on the available evidence, SED recommends that this violation be assessed from the installation date of July 15, 2014 until the SED inspection of July 17, 2015. From July 15, 2014 until July 17, 2015, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$600,000.**

b) Category 2: Violations for Failure to Have Controls in Place to Ensure that Gas Distribution System Construction, Operating, and Maintenance Records are Maintained and Kept Up-to-Date

PG&E has violated 49 CFR §§ 192.603(b), 192.605(a), 192.13(c) and PU Code § 451, for failing to have controls in place to ensure maintenance and update of its operating maps and data. This was demonstrated in the Incidents identified in the PWA Report resulting from failure to maintain accurate operating maps and/or data, the SED inspection findings in 2015, the absence of records to support establishment of the MAOP for approximately 243 distribution systems, and the missing leak repair records in the De Anza Division. PG&E should have taken more steps to ensure accurate mapping as indirect locating means are not always feasible (i.e.: in the absence of a tracer wire).

(1) **Systemwide Failure:** Based on the available evidence, SED recommends that this violation be assessed from the adoption of the Title 49 CFR Part 192 into General Order 112 on January 12, 1971 until the PWA Report was issued on September 30, 2015. From January 12, 1971, until December 31,

1993, SED recommends a maximum base fine of $2,000 per PU Code § 2107. From January 1, 1994 until December 31, 2011, SED recommends a maximum base fine of $20,000 per PU Code § 2107. From January 1, 2012 until September 30, 2015, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$7.122 million.**

(2) **Missing De Anza Division Leak Records:** Based on the available evidence, SED recommends that this violation be assessed from January 1, 1979 to December 31, 1991. From January 1, 1979 until December 31, 1991, SED recommends a maximum base fine of $2,000 per PU Code § 2107. SED recommends that an adverse inference be drawn such that at least one document has been lost for each day of each year in the subject time period. This results in tolling 4,748 separate violations, counting leap days, during the subject time period, per PU Code § 2108. The resultant fine is **$9.496 million.**

c) Category 3: Failure to Effectively Assess Data to Evaluate the Causes and Implications of Incidents, and to Incorporate the Lessons from these Investigations into Utility Policies, Procedures, and Programs

PG&E's failure to learn from experience warrants a substantial fine. Indeed, learning from experience in order to prevent future incidents is mandated by law pursuant to Public Utilities Code §§ 451 and 961(d)(1), as well as 49 CFR §§ 192.605(b)(4), 192.605(b)(8), 192.613, 192.617. The PWA Report found PG&E's efforts lacking in this area.

(1) **Unknown Plastic Inserts**: PWA observes that: "[t]he Internal Gas Incident Review, completed six months prior to the incident at Carmel, recommended that 'there needs to be new work procedures for installation and testing methods to determine and verify if a gas service or main was inserted.' This recommendation was not immediately followed, and new procedures were not implemented until after the Carmel incident."[361] Regarding the missing De Anza Records: "PG&E failed to recognize the significant hazard due to these missing records and considered the missing records as a medium risk[,] even though it had just experienced a near-miss and avoided a potential gas explosion due to the damaged plastic insert and

[361] Exhibit 2, PWA Reply, at 14.

resulting leaking gas."[362] Missing tracer wire can make plastic inserts more difficult to locate without a map.

Based on the available evidence, for failing to address the issue of plastic inserts not reflected in PG&E's records, SED recommends that this violation be assessed from the date of the Mountain View Incident, July 30, 2013, until the date of the Carmel House Explosion, March 3, 2014. Given the gravity of this failure, SED recommends compounding the violation daily during the subject time period per PU Code § 2108, using a base fine of $50,000 per PU Code § 2107. This results in a fine of **$10.8 million**.

(2) **Lack of Timely Investigation into the Missing Leak Repair Records**: Regarding the over a decade of missing De Anza Records, "it was known these records were missing for a few years."[363] Yet nothing of consequence was done to mitigate this glaring issue. Indeed, the underlying Mountain View Incident records (from De Anza) were missing, resulting in the Mountain View Incident.

Based on the available evidence, for failing to address the issue of the over a decade of missing records, SED recommends that this violation be assessed for three years until the date of the Mountain View Incident, July 30, 2013. Three years is SED's interpretation of the CAP Item's reference to a "few years." From July 30, 2010 until December 31, 2011, SED recommends a maximum base fine of $20,000 per PU Code § 2107. From January 1, 2012 until July 30, 2013, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during the subject time period per PU Code § 2108, results in a fine of **$1.29 million.**

(3) **Failure to Account for Unknown Stubs**: This is a significant recordkeeping failure. PWA observes that: "mis-mapped or unmapped stubs off a main … [are] a major source of marking errors that have caused damage by third parties (as well as PG&E crews) when doing work adjacent to or on the existing mains."[364] Further, "there are issues not only with inaccurate records of where the stub was cut-off, but that some stubs shown on the maps are not in the location where they are shown, or they have potentially been cut-off at the main and thus no longer exist. Inaccurately mapped stubs are an issue when other infrastructure work requiring excavation is performed since service line stubs may cross the street from the gas main to the property line for those properties that

[362] Exhibit 2, PWA Reply, at 15.

[363] Exhibit 6, CAP Item, at W049.002.

[364] Exhibit 1, PWA Report, at 34:26-28.

previously had gas service."[365] Regarding PG&E's response to this issue, PWA notes that "[u]ntil recently, PG&E had a policy that when a stub could not be located it would be eliminated from the map and from the related records."[366] PG&E should be held accountable for allowing this dangerous condition to persist.

Based on the available evidence, for failing to address the issue of unknown stubs, SED recommends that this violation be assessed from the date of the Morgan Hill Incident, June 21, 2012, until the date of San Jose Incident II, January 20, 2015. SED recommends a maximum base fine of $50,000 per PU Code § 2107. Given the significant danger that work on such stubs poses to the public, SED recommends compounding the violation on a weekly basis, during the subject time period per PU Code § 2108. This results in a fine of **$6.8 million**.

(4) **Failure to Account for Unmapped Facilities:** "PG&E maps and records have suffered from years of neglect, leading to a situation in which maps are inaccurate and records are incomplete; the inaccuracy and incompleteness has contributed to numerous incidents, some serious."[367] This poses a significant threat, particularly to incidents resulting from excavation damages. Several incidents detailed in the PWA Report resulted in excavation damages caused by unmapped facilities. Further, the City of Carmel provided in its testimony an example of an event that resulted in a customer losing service due to unmapped service line.[368] On April 6, 2015, a Carmel resident lost gas service when the PG&E crew replaced gas mains and services in the street adjacent to the house. PG&E admitted that the service line to the house was not identified on the map use to design and construct the new main; thus the service to the house was not reconnected to the new main.[369] These incidents demonstrate PG&E's failure to account for its active facilities in the field.

Based on the available evidence, SED recommends that this violation be assessed from the date of the San Ramon incident, August 12, 2009, until the date of the Carmel event, April 6, 2015. From August 12, 2009 until December 31, 2011, SED recommends a maximum base fine of $20,000 per PU Code § 2107. From January 1, 2012 until April 6, 2015, SED recommends a maximum base fine of $50,000 per PU Code § 2107.

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[365] Exhibit 1, PWA Report, Attachment E, at 124.

[366] Exhibit 1, PWA Report, at 35:1-2.

[367] Exhibit 1, PWA Report, at 74:6-8.

[368] Exhibit 43, Prepared Direct Testimony of Police Chief Michael Calhoun on Behalf of the City of Carmel-by-the-Sea; at 4:5-14.

[369] Exhibit 4, PG&E Reply Testimony, at 3-39:28-34.

Compounding the violation monthly, during the subject time period per PU Code § 2108, results in a fine of **$2.51 million**.

(5) **Mismapped Facilities:** Similar to unmapped facilities, maps showing inaccurate location of the gas distribution facilities also pose a significant threat. Discrepancies in the mapping record provided to PG&E field employees and those found in the field can lead to confusion that could result in the mismarking of underground distribution facilities.

Based on the available evidence, for failing to account for unmapped facilities, SED recommends that this violation be assessed from the date of the Roseville incident, October 21, 2010, until the date of the Fresno incident, September 24, 2014. From October 21, 2010 until December 31, 2011, SED recommends a maximum base fine of $20,000 per PU Code § 2107. From January 1, 2012 until September 24, 2014, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during the subject time period per PU Code § 2108, results in a fine of **$1.93 million**.

(6) **Failure to Address Difficult to Locate Facilities:** "Because of occasional difficulty or inability to track such frequencies due to signal jumping, broken or missing locating wire, or long distances from direct connections to the area to be marked, gas lines are occasionally mismarked or not marked at all rather than basing markings solely on information in maps."[370] Reliability of the equipment used by field locators can be impacted by the various elements as stated in the PWA Report, causing mismarking of the subsurface facilities. This emphasizes the importance of accurate and complete maps and records

Based on the available evidence, SED recommends that this violation be assessed from the date of the Alameda Incident, September 28, 2010, until the date of the San Francisco Incident, April 8, 2014. From September 28, 2010 until December 31, 2011, SED recommends a maximum base fine of $20,000 per PU Code § 2107. From January 1, 2012 until April 8, 2014, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during the subject time period per PU Code § 2108, results in a fine of **$1.65 million.**

d) Category 4: Failure to Disclose the Missing De Anza Division Records in Response to the OII

PG&E's failure to disclose known facts about the missing De Anza Records violated PU Code § 451. By omitting material facts from the Commission's inquiry,

[370] Exhibit 1, PWA Report, at 32:14-17.

PG&E obstructed the Commission's ability help PG&E improve the safety of its system. The Commission needs to have the material facts in order to craft appropriate mitigation for PG&E's system, and to provide appropriate feedback through fines. This is more serious than comparable Rule 1.1 violations, because PG&E actions have the potential to have adverse effects on public safety.

Based on the available evidence, for failing to disclose known facts about the missing De Anza records to the Commission, SED recommends that this violation be assessed from the date of the PG&E Initial Report, December 22, 2014, until the data response date of June 12, 2015, indicated in Exhibit 33.[371] Given the gravity of this failure, SED recommends compounding the violation daily during the subject time period per PU Code § 2108, using a base fine of $50,000 per PU Code § 2107. This results in a fine of **$8.6 million**.

e) Category 5: Failure to Provide Personnel with Construction Records, Maps and Operating History Available to Operating Personnel to Safely Perform Work

PG&E failed to provide operating staff with accurate records, maps and operating history, for many of the incidents identified in the PWA Report. Using such inaccurate records are a demonstrated safety hazard, and a causal factor for many incidents. Failing to provide accurate records, maps, and operating history violates 49 CFR § 192.605(b)(3) and PU Code § 451. For this investigation, each violation is considered to have occurred on the day of the incident. PU Code § 2108 was not applied for this category of violations. Thus, for the following incidents, with the exception of Milpitas Incident I, SED recommends a one-time fine in this category, at the statutory maximum applicable at the time of the incident. For Milpitas Incident I, the fine is doubled to reflect the two occasions when inaccurate information was provided.

Castro Valley Incident: $20,000

Morgan Hill Incident: $50,000

[371] The subject document was turned over subsequently in a Bates production in June of 2015.

Milpitas Incident I:	$100,000
Milpitas Incident II:	$50,000
Mountain View Incident:	$50,000
Carmel House Explosion:	$50,000
Colusa Incident:	$20,000
San Ramon Incident:	$20,000
Roseville Incident:	$20,000
Sacramento Incident:	$20,000
Fresno Incident:	$50,000
San Jose Incident II:	$50,000

The total fine for this category is **$500,000**.

f) Category 6: Failure to Properly Mark and Locate its Subsurface Facilities:

"The incidents in the OII…highlights a major source of marking errors that have caused damage by third parties (as well as PG&E crews) when doing work adjacent to or on the existing [subsurface gas facilities]."[372] Due to inaccurate or incomplete records or maps provided to its personnel, PG&E has failed to properly mark and locate its subsurface facilities resulting in excavation damage. Failing to locate and mark the approximate location of its subsurface facilities in response to an Underground Service Alert request violates 49 CFR § 192.614(c)(5) and California Government Code § 4216.3(a)(1). For this investigation, each violation is considered to have occurred on the day of the incident. PU Code § 2108 was not applied for this category of violations. Thus, for the following incidents, SED recommends a one-time fine in this category, at the statutory maximum applicable at the time of the incident:

Castro Valley Incident:	$20,000
Morgan Hill Incident:	$50,000

[372] Exhibit 1, PWA Report, at 34:26-28.

Milpitas Incident II:	$50,000
San Ramon Incident:	$20,000
Roseville Incident:	$20,000
Kentfield Incident:	$20,000
Sacramento Incident:	$20,000
Alamo Incident:	$50,000
Lafayette Incident:	$50,000
San Francisco Incident:	$50,000
Fresno Incident:	$50,000
San Jose Incident II:	$50,000

The total fine for this category is **$450,000**.

g) Category 7: MAOP-Associated Violations

As described above, PG&E failed to maintain records to establish the maximum allowable operating pressure (MAOP) for approximately 243 distribution systems. This is a violation of 49 CFR §§192.603(b), 192.605(a), 192.619(c). Based on the available evidence, SED recommends that this violation be assessed from effective date of General Order 112-C which incorporated the federal regulations, January 12, 1971, until the date of the PWA Report, September 30, 2015. From January 12, 1971, until December 31, 1993, SED recommends a maximum base fine of $2,000 per PU Code § 2107. From January 1, 1994 until December 31, 2011, SED recommends a maximum base fine of $20,000 per PU Code § 2107. From January 1, 2012 until September 30, 2015, SED recommends a maximum base fine of $50,000 per PU Code § 2107. Compounding the violation monthly, during this time period per PU Code § 2108, results in a fine of **$7.12 million.**

(h) Category 8: Other Violations Identified

PWA's evaluation of the initial six incidents and the additional incidents found additional violations of the California code and the federal code, as follows:

(1) Colusa Incident:

In this incident, there was a failure to follow internal procedures and failure locate and mark all subsurface facilities within the delineated area, resulting in the PG&E crew damaging a 2-inch steel gas main with a backhoe. This is a violation of 49 CFR § 192.605(a) and California Government Code 4216.3(a)(1). Based on the available evidence, SED recommends a maximum fine of **$20,000** per PU Code § 2107 for this violation.

Also, the L&M staff experience, training and qualifications were inconsistent with the then-applicable mapping standards which resulted in the crew foreman misunderstanding a symbol on the plat map indicating a potential offset. This is a violation of 49 CFR § 192.805(h). Based on the available evidence, SED recommends a maximum fine of **$20,000** per PU Code § 2107 for this violation.

(2) San Ramon Incident:

PG&E's failure to perform leak surveys of the unmapped service since its installations in 1997, violates 49 CFR § 192.723(b)(2). Based on the available evidence, SED recommends that the violation be assessed once every five years, beginning from the installation date, October 14, 1997 until the incident date, August 12, 2009. SED recommends a maximum base fine of $20,000 per PU Code § 2107. Compounding the violation once every five years, during the subject time period per PU Code § 2108, results in a fine of **$40,000.**

(3) Antioch Incident:

PG&E's failure to follow its internal procedure which required the locate and mark personnel to contact mapping when the field conditions did not match the maps, violated 49 CFR §192.605(a). Based on the available evidence, SED recommends a maximum fine of **$20,000** per PU Code § 2107 for this violation.

Also, the marking provided of the subsurface facilities were 14 feet from the actual location of the pipeline. This failure to provide temporary marking of the approximate location for its subsurface facilities violates 49 CFR §192.614(c)(5) and California Government Code § 4216.3(a)(1). Based on the available evidence, SED recommends a maximum fine of **$20,000** per PU Code § 2107 for this violation.

(4) Alameda Incident:

PG&E's failure to follow its internal procedure which required the locate and mark personnel to contact mapping when the field condition did not match the maps, violates 49 CFR §192.605(a). Based on the available evidence, SED recommends a maximum fine of **$20,000** per PU Code § 2107 for this violation.

Also, PG&E's locate and mark personnel mismarked the subsurface facilities resulting in the excavation damage. Failure to provide temporary marking of the approximate location for its subsurface facilities violates 49 CFR §192.614(c)(5) and California Government Code § 4216.3(a)(1). Based on available evidence, SED recommends a maximum fine of **$20,000** per PU Code § 2107 for this violation.

(5) Kentfield Incident:

PG&E's failure to install tracer wire on the plastic main, which was installed on December 23, 2010, prevented the locate and mark personnel from marking the two-inch plastic main resulting in the excavation damage. This is a violation of 49 CFR § 192.321(e). Based on the available evidence, SED recommends a maximum fine of **$20,000** per PU Code § 2107 for this violation.

(6) Alamo Incident:

PG&E's failure to locate and mark the subsurface facilities and leaving the site during an emergency violated PU Code § 451. Based on the evidence gathered, SED recommends a maximum fine of **$50,000** per PU Code § 2107 for this violation.

(7) Lafayette Incident:

This incident involved PG&E's failure to follow its own standard which required cutting off services as close to the main as possible and PG&E's failure to properly abandon or deactivate its gas facilities in 2002. This is a violation of 49 CFR § 192.605(a) and consequently of 49 CFR §192.727(b). Based on the available evidence, SED recommends a maximum fine of **$20,000** per PU Code § 2107 for this violation.

(8) San Jose Incident I:

In this incident, PG&E's failure to follow internal procedures, which require notification of a PG&E supervisor if the excavator is unavailable or unable to renegotiate

a later agreeable date to complete the locate and mark is a violation of 49 CFR § 192.605(a). Based on the available evidence, SED recommends a maximum fine of **$50,000** per PU Code § 2107 for this violation.

Also, PG&E's failure to, within two working days or a mutually agreeable date, locate and mark its subsurface facilities, resulted in the excavation damage. This is a violation of California Government Code 4216.3(a)(1). Based on the available evidence, SED recommends a maximum fine of **$50,000** per PU Code § 2107 for this violation.

B. Conduct of the Utility

Citing PU Code § 2109, D.98-15-074 notes that:

> This factor recognizes the important role of the public utility's conduct in (1) preventing the violation, (2) detecting the violation, and (3) disclosing and rectifying the violation. The public utility is responsible for the acts of all its officers, agents, and employees[.][373]

Thus, in evaluating a fine, the Commission considers the conduct of the utility at the following time frames.

1. Utility's Actions to Prevent a Violation

In evaluating this factor, the central question is what PG&E did to prevent its distribution recordkeeping failures. The answer is: not enough. As discussed above, PG&E had ample notice of its recordkeeping requirements for decades. It also knew about its distribution recordkeeping problems for decades.[374] Yet, it still did not take effective action in mitigation. This inaction is demonstrated by significant records losses, such as, for example, the loss of the leak repair records in the De Anza Division. It was only a matter of time before incidents such as Mountain View, and ultimately the Carmel House Explosion would occur. As it stands, backstop measures cannot fully mitigate PG&E's years of inaction. As PWA observes:

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[373] D.98-12-075, 1998 Cal. PUC LEXIS 1018, *91.

[374] See Exhibit 1, PWA Report, at 11:10-12 (quoting 1984 Bechtel Report at 13), 10:14-25 (quoting Duller and North Report, dated: March 5, 2012, at 6-25; see also Exhibit 29, 2001 Correspondence.

> PG&E maps and records have suffered from years of neglect, leading to a situation in which maps are inaccurate and records are incomplete; the inaccuracy and incompleteness has contributed to numerous incidents, some serious.[375]

This factor supports the recommended fine.

2. Utility's Actions to Detect a Violation

The safety hazards examined throughout this investigation highlight PG&E's failure to detect its gas distribution recordkeeping violations, before incidents occur. Indeed, PG&E's inability to detect its violations in this regard support the rationale for why this OII was launched. This factor supports the recommended fine.

3. Utility's Actions to Disclose and Rectify a Violation

This factor has aggravating and mitigating facts. In mitigation, PG&E's Admission Letter discloses a violation of 49 CFR § 192.605(b).[376] However, at hearings PG&E distanced itself from the letter. This demonstrates a lack of remorse, and argues for a higher fine.

In further mitigation, PWA highlights certain new PG&E practices.[377] However, PWA also notes that PG&E has failed to follow procedures[378], and engages in opportunistic rather than proactive map correction activities.[379] This casts doubts into the effectiveness of PG&E's current remedial measures.

PG&E's failure to disclose its knowledge of the missing De Anza records is an aggravating fact. PG&E's failure to admit violations other than 49 CFR § 192.605(b) is also an aggravating fact.

On balance, this factor supports the recommended fine.

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[375] Exhibit 1, PWA Report, at 74:6-8.

[376] See Exhibit 36, PG&E Admission Letter.

[377] See, e.g., PWA Report, Table 9, at 59-67.

[378] Exhibit 1, PWA Report, at 1:22-28.

[379] Exhibit 1, PWA Report, at 1:31 – 2:2.

C. Financial Resources of the Utility

D.98-15-075 notes that: "[e]ffective deterrence also requires that the Commission recognize the financial resources of the public utility in setting a fine which balances the need for deterrence with the constitutional limitations on excessive fines."[380] In this regard, PG&E can afford the proposed fine. As the Commission recently determined in D.15-04-024, a decision setting fines in the San Bruno Matter:

> PG&E's market value as of January 10, 2012 was $16.439 billion, and an aggregate value of $29.117 billion. These values are significantly higher than the mean ($2.494 billion and $2.766 billion) and median ($2.215 billion and $3.060 billion) for comparable companies. Additionally, even if one were to only consider PG&E's gas transmission and distribution business on a standalone basis, it would have an aggregate value of approximately $6.4 billion, and an equity value of approximately $4.3 billion.[381]

Further, ALJ 277 observed that:

> PG&E is a very large utility with significant financial resources. It is among the largest corporations in the United States. We recently described its size as:
> PG&E serves approximately 4.3 million natural gas customers and 5.2 million electric customers in a northern California service territory that covers 43% of the state. PG&E reported 2010 operating revenues of $13.841 billion. PG&E Corporation reported 2011 operating revenues of $14.956 billion.[382]

Given the financial resources of PG&E, the recommended fine is reasonable. Further, given these resources, in light of the conduct described above, any argument about the fine being "unconstitutionally excessive" would be without merit.

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[380] D.98-15-075, 1998 Cal. PUC LEXIS 1018, *93.

[381] D.15-04-024, at 62.

[382] ALJ 277, at 12. (internal citations omitted.)

D. Totality of the Circumstances in Furtherance of the Public Interest

D.98-15-075 notes that:

> Setting a fine at a level which effectively deters further unlawful conduct by the subject utility and others requires that the Commission specifically tailor the package of sanctions, including any fine, to the unique facts of the case. The Commission will review facts which tend to mitigate the degree of wrongdoing as well as any facts which exacerbate the wrongdoing. In all cases, the harm will be evaluated from the perspective of the public interest.[383]

In this investigation, a house exploded in a preventable incident. Further, numerous safety hazards and violations have been identified. The degree of wrongdoing is significant. PG&E also has a track record of violations, and needs to improve its practices. Aggravating and mitigating facts have been appropriately weighted.

The public interest favors imposing the recommended fine.

E. Role of Precedent

PG&E's past record of violations weighs in this factor, as several recent PG&E violations have become precedent.

- PG&E was fined $1.6 billion for numerous violations, including violations of PU Code § 451, for the San Bruno Pipeline Explosion. Eight people were killed, dozens were injured and over 100 houses were damaged.[384]
- In D.11-11-001, PG&E was fined $38 million for several violations related to a natural gas explosion in Rancho Cordova that killed one person, injured several more people, destroyed one house, and damaged another.[385]
- In 2012, PG&E lost its appeal of Citation ALJ-274 2012-01-001. PG&E had failed to conduct leak surveys for its gas distribution system, and was fined $16.76 million.[386]

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[383] D.98-15-075, 1998 Cal. PUC LEXIS 1018, *94.

[384] D.15-04-024.

[385] D.11-11-001.

[386] Citation ALJ-274 2012-01-001.

- PG&E recently withdrew is Appeal of the Carmel Citation, regarding non-recordkeeping violations associated with the Carmel House Explosion. This resulted in a fine of $10.85 million.[387]

For this OII, most of the relevant precedent simply demonstrates that PG&E is a frequent violator. Regarding the Rancho Cordova House Explosion, a case that involved a fatality, the current recommended fine is higher due in part to the numerous identified safety violations, occurring over a significant period of time. Further, the PWA Report establishes substantial safety risks in PG&E's service territory, due to PG&E's poor distribution recordkeeping. In SED's view, the Commission should not wait for another fatality before holding PG&E accountable for conduct that resulted in a non-fatality house explosion.

Outside of PG&E's prior wrongdoing, Southern California Edison Company ("SCE") and four telecommunications providers recently agreed to pay a combined total of: $63.5 million to settle a utility pole overloading case, the Malibu Canyon Fire OII (I.09-01-018).[388] In the Malibu Canyon Fire, the following occurred:

> On October 21, 2007, strong Santa Ana winds swept across Malibu Canyon in Los Angeles County. Three utility poles located next to Malibu Canyon Road fell and ignited a fire. The resulting fire (the Malibu Canyon Fire) burned 3,836 acres, destroyed 14 structures and 36 vehicles, and damaged 19 other structures. The Los Angeles County Fire Department estimated the dollar loss from the fire was $14,528,300. There were no reported injuries or fatalities.[389]

Notably, significant admissions regarding alleged violations were made by SCE and one of the telecommunications providers in the settlements. Parties' willingness to admit wrongdoing in causing the Malibu Canyon Fire accordingly reduced the applicable fines. By comparison, in the instant OII, PG&E only grudgingly admits that it violated

[387] ALJ 323.

[388] D.12-09-019; D.13-09-026; D.13-09-028.

[389] D.13-09-028, at 4.

49 CFR § 192.605(b). Further, as mentioned above, the current recommended fine is higher than the Malibu settlement in part because of the numerous identified safety violations, occurring over a significant period of time.

It should also be noted that in ALJ 277, the Commission rejected D.04-04-065, in which SCE was fined $656,000 for safety violations. In particular, it was noted that: "The regulatory regime is not the same as it was in 2004. CPSD (now SED) has in this case used these new tools and authority as we expect it to do, and we affirm the result here."[390]

Prior Commission precedent supports the recommended fine.

XIV. REMEDIAL MEASURES

SED recommends the following remedial measures:

a. **Missing Records**: PG&E should conduct a systemic review of its records to determine if there are other categories of missing records of the same magnitude as the missing De Anza records. Within 90 days of a final Commission decision in this matter, PG&E should file a report that identifies all of the categories of missing records for its gas distribution system identified in this review and an assessment of how the records were lost.

b. **Incomplete Records and Maps**: Within 90 days of a final Commission decision in this matter, PG&E should file a report based on a systemic review of its distribution system to ensure that all of its facilities are accounted for. PG&E should leverage information gathered from its field personnel and various sources, such as its CAP, to determine any negative trends that impact the completeness and accuracy of its records and maps.

c. **Inaccurate Records and Maps**: PG&E should conduct a review of its GD GIS system to validate the data using all available records to ensure completeness and accuracy of data in GD GIS. Within 90 days of a final Commission decision in this matter, PG&E should file a report presenting documentation of all aspects of this review.

d. **Unknown Plastic Inserts:** PG&E should evaluate the need for a proactive program to identify unknown plastic inserts in its distribution system. Within 90 days of a final Commission decision in this matter, PG&E should file a report describing the evaluation for program need, and the basis for why a

[390] ALJ 277, at 14.

proactive program is or is not needed. PG&E should also describe any additional measures it is taking to address the risk of unknown plastic inserts

e. **Unmapped Stubs**: Within 90 days of a final Commission decision in this matter, PG&E should provide a report describing its policy of for identification of stubs, and documenting a systemic effort to account for stubs.

f. **Damage Prevention**: PG&E should perform an analysis to determine causes of at-fault excavation damages of its distribution system. Within 90 days of a final Commission decision in this matter, PG&E should provide a report of its analysis including measures to reduce the number of at-fault excavation damages caused by mapping and/or record inaccuracies in its gas distribution system.

g. **Distribution MAOP**: Within 90 days of a final Commission decision in this matter, PG&E should identify all of the facilities in its distribution system[391] in which PG&E applied its alternative method of using post-1970 leak survey records to establish the MAOP. PG&E should provide a final list of these systems with the following data, at a minimum:

- Distribution line number, name, or nomenclature used by PG&E to identify the system
- Location of the system – City and PG&E Division responsible for operations and maintenance
- Operating Pressure
- MAOP
- Date installed
- Date placed in service
- Strength test information – date tested, test pressure, and duration
- Material type
- Size
- Length
- Copy of record/document used to establish the MAOP

h. **Distribution MAOP**: PG&E should conduct a risk analysis and demonstrate its basis to conclude that the method it used for setting MAOP on the approximately 243 distribution systems do not create any additional safety risk. Along with the final list indicated above, within 90 days of a final Commission decision in this matter, PG&E should provide a report to the Commission

[391] 49 CFR §192.3 defines a distribution line as "a pipeline other than a gathering or transmission line."

describing the risk analysis performed, conclusions from that analysis, and any proposed remedial measures. SED reserves the right to review PG&E's report and submit a recommendation to the Commission.

SED shall review any remedial measures proposed by other parties and may elect to comment on such proposals in its reply brief.

XV. CONCLUSION

For the abovementioned reasons, PG&E should be found in violation of the identified code sections, fined **$111.926 million**, and ordered to commence the identified remedial measures.

Respectfully Submitted,

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